ENERGY AND WATER, AND RELATED AGENCIES APPROPRIATIONS FOR FISCAL YEAR 2007

THURSDAY, APRIL 6, 2006

U.S. SENATE,
SUBCOMMITTEE OF THE COMMITTEE ON APPROPRIATIONS,
Washington, DC.

The subcommittee met at 2:07 p.m., in room SD–192, Dirksen Senate Office Building, Hon. Pete V. Domenici (chairman) presiding.

Present: Senators Domenici and Allard.

DEPARTMENT OF ENERGY

NATIONAL NUCLEAR SECURITY ADMINISTRATION

STATEMENT OF HON. LINTON F. BROOKS, UNDER SECRETARY FOR NUCLEAR SECURITY, AND ADMINISTRATOR, NATIONAL NUCLEAR SECURITY ADMINISTRATION

ACCOMPANIED BY:

JERRY PAUL, PRINCIPAL DEPUTY ADMINISTRATOR, NUCLEAR NONPROLIFERATION ACTIVITIES

ADMIRAL KIRKLAND DONALD, DEPUTY ADMINISTRATOR FOR NAVAL REACTORS

THOMAS D'AGOSTINO, DEPUTY ADMINISTRATOR FOR DEFENSE PROGRAMS

STATEMENT OF SENATOR PETE V. DOMENICI

Senator DOMENICI. The hearing will please come to order. Today the subcommittee is going to hear testimony on the fiscal year 2007 budget request for the National Nuclear Security Administration. I would like to thank Ambassador Brooks for joining us here today and providing his testimony. The Ambassador is joined by Jerry Paul, the Principal Deputy Administrator for Nuclear Nonproliferation Activities—is that correct?—and Tom D'Agostino, Deputy Administrator for Defense Programs; and Admiral Kirkland Donald, Deputy Administrator for Naval Reactors. I appreciate everyone's participation and thank you for coming.

Ambassador Brooks will provide the testimony and his three deputies will be available to answer questions. I understand that is our format.

The President's request for NNSA for 2007 is $9.3 billion, up $211 million from last year's enacted level. Weapons programs. The funding for the weapons programs is $6.4 billion, up about $38 mil-

lion. In large measure, this budget supports the necessary investments in lab infrastructure. However, I am concerned with the declining trend in science-based stockpile stewardship activities, such as science, engineering, and inertial confinement fusion.

I could not be more disappointed in what the Department has proposed for inertial confinement fusion budget. The Department continues to put all their resources behind the NIF project at the expense of all the other stockpile activities. Funding for NIF research is up over $50 million while the other high energy density research has been cut by $115 million. The NIF-at-all-costs attitude is now undermining balancing the weapons stewardship research activities. Declining budgets for non-NIF-related science has put weapons physics research on Z and Omega clearly at risk.

Mr. Ambassador, I believe this strategy is not the right one and we are going to work hard to correct it here in the Senate energy and water bill and we hope the product that we finish with will meet your satisfaction. It will be different than that which you submitted to us.

On Monday, Tom D'Agostino briefed me, and I thank him for that, on NNSA's plan to implement the nuclear complex of the future. The Department has developed a plan to consolidate operations in fewer locations, which should reduce security costs and reduce the overall number of facilities that NNSA must maintain out in the future, perhaps to 2030. In addition, it supports the Reliable Replacement Warhead program and begins to catch up on the dismantlement of weapons no longer in the stockpile. That is good.

What I believe is missing from the plan is a decrease in the overall number of weapons systems in the NNSA that they are going to be expected to maintain. Under the plan the NNSA will continue to support the same eight systems plus the new RRW through 2030 if I understand it correctly. It seems to me that you have traded off facilities, science, and people in exchange for the same number of systems and responsibilities. I am not sure that I got that figured right, but it looks like it, and I am not sure that makes the best sense overall.

Why does this plan not contemplate reduction in existing systems, perhaps the elimination of one of them? Many experts wonder why we continue to maintain the W80. Maybe it is time to revisit the need for the life extension of that weapon. We will see.

Nuclear nonproliferation is the next issue, and the budget continues to receive strong support from the President. That is good news. Funding for the nuclear nonproliferation activities are up $111 million, for a total of $1.73 billion. Funding for MOX, the global threat reduction initiative, and the MPC&A all received increases. I think that is good news.

One notable exception is the funding cut for the nuclear detection R&D program. This activity supports research that gives our national security teams the technical advantage over terrorist countries that attempt to conceal their nuclear programs. We will ask about that, why that should have been reduced or eliminated.

In 1998 I worked very hard with a few others to provide $200 million to encourage the Russians to come to the negotiating table on plutonium disposition, 1998. The funding was in good faith and the offer to the Russians to demonstrate our sincerity and serious-

ness about nonproliferation. The Department of Energy and State, the Department of State, have secured $800 million from G–8 partners to construct the Russian MOX plant, a real achievement.

However, I understand the Russians have raised the stakes and are now demanding that the G–7 pay for the plant operations. I think we are correct in that. You have to talk about that, Mr. Ambassador. It is a matter of high, high importance. Unless we allow them to use the plutonium for their fast breeder reactor program, they insist that we are going to have to pay for plant operations. Now, I am concerned that these fact reactors could be turned into breeder reactors and will create additional plutonium, the very substance we are trying to eliminate.

We also continue to wait for the final approval of the Russians—that is, their full governmental, governance-making—on the liability deal negotiated last July. I feel that the opponents of MOX will use these delays as an excuse to cut funding for this project. The Russian delaying tactics have created a liability for the U.S. program in my opinion.

I believe we should de-link the construction projects and allow the U.S. efforts to go forward to create a disposal pathway for our weapons-grade plutonium. We must live up to our commitments of reducing our stockpile even if the Russians will not or if for some reason they think they must continue to delay this matter, as I have described it, or for other reasons.

In the mean time, we should continue to talk and try to work things out with the Russians, try to get an agreement prior to or during the G–8 meeting. That is up to our two great countries and that will take place this summer. But until we have final agreement that will guarantee the destruction of the 34 tons of Russian weapons-grade plutonium, the United States should not fund the Russian construction project and we must not provide any further design on the MOX plant for the Russians in my opinion.

My last observation has to do, Mr. Ambassador, with the cost of operations of LANL. In 2 months, Los Alamos National Security LLC will take over the M&O contract at Los Alamos from the University of California, which has operated the facility for 60 years. I am concerned about the increased costs of the new contract negotiated by NNSA. I am not saying I am concerned in the sense that this should not have happened, but I am concerned that the new contract provides significant increases in the fee, from roughly $8 million to $80 million, and it will require the lab to pay the gross receipts tax to the State of New Mexico of about $75 million. I think that is the estimate.

I suspect that there are operations—several other increases that add to the bottom line operations because of the new contract. I do not know that. Unfortunately, the Los Alamos lab budget does not reflect any increases to accommodate these added charges. All of these costs will come out of R&D, science, and operational accounts, putting further strain on an already tight budget.

I hope to get some answers from you, Mr. Ambassador, as to how these costs will be offset without having a negative impact on lab operations. I know the answer is going to be there will be savings made here and there and elsewhere. That may be the case, but clearly that is not going to go on forever, and we are going to have

some assurance that in the future we have got to make this up in ways other than to continue to assume it will come out of savings.

I will close now by saying how I remain impressed with the success of the naval reactor program. I save it for last because it is best and because it does not take very long to explain it, to just say that the Navy needs nuclear propulsion plants that are capable of responding to the challenges that we face and we believe this program accomplishes these goals. The 5-year plan includes a small but a steady increase in the naval reactors, which will prove beneficial in the coming months.

Now, I will ask if there are any others who want to make opening remarks. If there are any opening remarks that are needed to be put in the record, we will provide for that now without objection.

Now, having completed that, we will move to the witness. Mr. Ambassador, sorry I took so long, but I think you know how I feel on a few of these subjects now. So you may proceed as you see fit.

STATEMENT OF HON. LINTON F. BROOKS

Ambassador BROOKS. Thank you, sir. I have submitted a statement which I would like received for the record.

The President's budget supports three main missions: safe, secure, and reliable stockpile; reducing the nonproliferation threat; and providing reliable and safe nuclear propulsion systems for the Navy. Most of our programs are similar to previous years, are familiar to the committee, and are described in my written statement, so I want to limit my opening remarks to drawing your attention to a couple of points.

First, as you noted, sir, although the stockpile remains safe and reliable today, we must ensure reliability and safety over the long term and this means transforming the stockpile and the supporting infrastructure. Our approach to doing so depends heavily on the concept of a Reliable Replacement Warhead, taking advantage of our decision to relax cold war design constraints. We believe we will be able then to design replacement components that are easier to manufacture, safer, use environmentally more benign material, and increase performance margins.

I share your concern about the number of weapons systems. The Department of Defense and we are working together closely. The question is not: "Will we still be maintaining eight systems in 2030?" The answer is almost certainly no. The question is: "How far along do we have to go in this new effort before the military can have confidence that it can eliminate a weapons system?" Our assumption for the long-term future demands, frankly, that there would be reductions in the life extension programs. Otherwise the resources for modernizing the complex are going to be very difficult to find.

We have completed, as you know and as you have been briefed, an intensive effort to sustain and establish our vision for the future, and I am quite pleased with it. Our challenge has been to find a path that is both affordable and feasible, and lets us continue to support the near-term stockpile.

I want to make two other points about the weapons program. Last year the Congress reduced life extension programs and those reductions challenge our ability to meet DOD requirements. I am

especially concerned with the reduction to the W76 submarine-launched ballistic missile warhead and, assuming that it is retained, the W80 cruise missile warhead.

Also last year, the Congress significantly reduced funds for the facilities and infrastructure recapitalization program. That has made it impossible to meet the congressionally-mandated date of 2011 to terminate this program and the administration has submitted legislation to extend the effort 2 years. I hope that the Congress this year will support the President's request in both those areas.

Turning to nonproliferation, I would like to highlight three areas. First, we are on track to meet the various commitments agreed to between President Bush and President Putin at Bratislava in 2008. We will complete security upgrades in Russia by that date.

Second, we are requesting a significant funding increase to permanently shut down the three remaining weapons-grade plutonium production reactors in Russia and we are also proposing a significant increase for the global threat reduction initiative, which secures both fissionable and radioactive material.

Finally, as you noted, under the plutonium disposition program we expect to begin construction of the MOX fuel fabrication facility this fall, and approval of the entire administration request is in my judgment crucial because we will be seeking the peak funding construction year in 2007.

I would also like to turn to two points that you made in your opening statement and respond briefly to them and then we can respond further in questions. With respect to nonproliferation research and development, our request this year is almost identical to our request last year. Last year the Congress increased funding. We did not take that as intended to be direction to alter our long-term base, and so it is not a question of cutting that program. It is a question of assuming that that was a one-time increase.

Secondly, with regard to Los Alamos, I share your concern that we make sure that the American taxpayers and the program are not put at risk by the change we have made at Los Alamos. Over the next 7 years we could potentially spend almost half a billion dollars in fees at Los Alamos and I intend to get something for it.

First, 70 percent of that fee will be performance-based and we will not spend it unless the performance warrants it. Performance very much includes efficiencies and improvements that will free up resources. As you know, when the lab director decided to shut the facility down, you can argue about the bookkeeping, but we probably spent several hundred million dollars. If we can guarantee that never happens again, we will in fact have more money to go into the program.

I am also pleased that the new contractor has proposed a decreasing fee that starts at $70 million a year and drops in the seventh year to a maximum of $54 million. That is still a lot of money, but it is an indication that they believe that their task will be greatest in the early years.

Finally, as you noted, the naval reactors effort, which has always been a model for performance efficiency, is the final segment of our budget. Our request supports our No. 1 priority of ensuring safety

and reliability of 104 operating Navy nuclear propulsion plants and it also continues research on advanced technology.

PREPARED STATEMENT

Mr. Chairman, our budget request continues to transform the stockpile, continues to transform the infrastructure, continues to reduce the global danger from proliferation, and continues to enhance Navy force projection capabilities, and I urge the committee to support it.

With that, sir, I am ready for your questions.

[The statement follows:]

PREPARED STATEMENT OF HON. LINTON F. BROOKS

Thank you for the opportunity to discuss the President's fiscal year 2007 Budget Request for the National Nuclear Security Administration (NNSA). This is my fourth appearance before this committee as the Under Secretary for Nuclear Security, and I want to thank all of the members for their strong support for our important national security responsibilities.

OVERVIEW

In the sixth year of this administration, with the strong support of Congress, NNSA has achieved a level of stability that is required for accomplishing our long-term missions. Our fundamental responsibilities for the United States include three national security missions:

—assure the safety and reliability of the U.S. nuclear weapons stockpile while at the same time transforming that stockpile and the infrastructure that supports it;

—reduce the threat posed by nuclear proliferation; and

—provide reliable and safe nuclear reactor propulsion systems for the U.S. Navy.

The budget request for $9.3 billion, an increase of $211 million, supports these NNSA missions.

Weapons Activities

The NNSA is committed to ensuring the long-term reliability, safety and security of the Nation's nuclear deterrent. Stockpile Stewardship is working; the stockpile remains safe and reliable. This assessment is based not on nuclear tests, but on cutting-edge scientific and engineering experiments and analysis, including extensive laboratory and flight tests of warhead components and subsystems. Each year, we are gaining a more complete understanding of the complex physical processes underlying the performance of our aging nuclear stockpile. However, as we continue to draw down the stockpile to the levels established in the Treaty of Moscow—between 1,700 and 2,200 operationally deployed strategic nuclear weapons—we must consider the long-term implications of successive warhead refurbishments for the weapons remaining in the stockpile. Successive refurbishments will take us further from the tested configurations and it is becoming more difficult and costly to certify warhead remanufacture despite the extraordinary success of the Stockpile Stewardship Program.

If we were starting to build the stockpile from scratch today we would take a much different approach than we took during the Cold War. Most of today's warheads were designed to maximize explosive yield with minimum size and weight so that many warheads could be carried on a single delivery vehicle. As a result, weapons designers designed closer to the so-called "cliffs" in performance. If we were designing the stockpile today, we would manage risk differently, trading size and weight for increased performance margins and ease of manufacture and maintenance.

Second, the legacy stockpile was not designed for longevity. During the Cold War we introduced new weapons routinely, turning over most of the stockpile every 15–20 years. Today, our weapons are aging and now are being rebuilt in life extension programs that are both difficult and costly. Rebuilding nuclear weapons will never be cheap, but Cold War decisions to use certain hazardous materials mean that, in today's health and safety culture, warheads are much more costly to remanufacture.

Furthermore, we continue to evolve our deterrent posture from its Cold War origins to one that requires far fewer weapons. Decisions the President announced in 2004 will result, by 2012, in the smallest total stockpile since the Eisenhower Ad-

ministration. Even with these unprecedented reductions, however, the stockpile—especially the components we keep in reserve—is probably too large.

Finally, with regard to physical security, we must consider new technology to ensure these weapons can never be used by those who wish to harm us. During the Cold War the main security threat to our nuclear forces was from espionage. Today, that threat remains, but to it has been added a post-9/11 threat of well-armed and competent terrorist suicide teams seeking to gain access to a warhead or to special nuclear materials in order to cause a nuclear detonation in place. This change has dramatically increased security costs. If we were designing the stockpile today, we would apply new technologies and approaches to warhead design as a means to reduce physical security costs.

Fortunately, we know how to address all of these problems.

The administration's Nuclear Posture Review (NPR), completed in December 2001, called for a transition from a threat-based nuclear deterrent with large numbers of deployed and reserve weapons to a deterrent based on capabilities, with a smaller nuclear weapons stockpile and greater reliance on the capability and responsiveness of the Department of Defense (DOD) and NNSA infrastructure to respond to threats. Success in realizing this vision for transformation will enable us to achieve over the long term a smaller stockpile, one that is safer and more secure, one that offers a reduced likelihood that we will ever again need to conduct an underground nuclear test, and one that enables a much more responsive nuclear weapons infrastructure. Most importantly, this effort can go far to ensure a credible deterrent for the 21st century that will reduce the likelihood we will ever have to employ our nuclear capabilities in defense of the Nation—through demonstration of responsiveness in design and production, demonstration of confidence in our abilities, cleanup of portions of the Cold War legacy and demonstration of America's will to maintain nuclear preeminence. We have worked closely with the DOD to identify initial steps on the path to a responsive nuclear infrastructure.

What do we mean by "responsive nuclear weapons infrastructure?" By "responsive" we refer to the resilience of the nuclear enterprise to unanticipated events or emerging threats, and the ability to anticipate innovations by an adversary and to counter them before our deterrent is degraded. Unanticipated events could include complete failure of a deployed warhead type or the need to respond to new and emerging geopolitical threats. The elements of a responsive infrastructure include the people, the science and technology base, and the facilities and equipment to support a right-sized nuclear weapons enterprise. But more than that, it involves a transformation in engineering and production practices that will enable us to respond rapidly and flexibly to emerging needs. Specifically, a responsive infrastructure must provide capabilities, on appropriate timescales and in support of DOD requirements, to:

—Dismantle warheads;
—Ensure warheads are available to augment the operationally deployed force;
—Identify, understand, and fix stockpile problems;
—Design, develop, certify, and begin production of refurbished or replacement warheads;
—Maintain capability to design, develop, and begin production of new or adapted warheads, if required;
—Produce required quantities of warheads; and
—Sustain underground nuclear test readiness.

As we and the DOD take the first steps down this path, we clearly recognize that the "enabler" for transformation is our concept for the Reliable Replacement Warhead (RRW). The RRW would relax Cold War design constraints that maximized yield to weight ratios and thereby allow us to design replacement components that are easier to manufacture, are safer and more secure, eliminate environmentally dangerous materials, and increase design margins, thus ensuring long-term confidence in reliability and a correspondingly reduced chance we will ever need to resort to nuclear testing.

The combination of the RRW and a responsive infrastructure—each enabled by the other—may be genuinely transformational. The reduced stockpile the President approved in 2004 still retains a significant non-deployed nuclear stockpile as a hedge against technical problems or geopolitical changes. Once we demonstrate that we can produce warheads on a timescale in which geopolitical threats could emerge, we would no longer need to retain extra warheads to hedge against unexpected geopolitical changes.

In addition to the mission of continuously maintaining the safety, security, reliability and operational readiness of the Nation's nuclear deterrent, establishing the capabilities to achieve and sustain this transformation is a central focus of our activities. Transformation will, of course, take time. We are starting now with improv-

ing business and operating practices, both in the Federal workforce and across the nuclear weapons complex, and through restoring and modernizing key production capabilities. Full infrastructure changes, however, will take a couple of decades. But I believe by 2030 we can achieve a responsive infrastructure that will provide capabilities, if required, to produce weapons with different or modified military capabilities. As important, through the RRW program we will revitalize our weapons design community to meet the challenge of being able to adapt an existing weapon within 18 months and design, develop, and begin production of a new design within 3–4 years of a decision to enter engineering development—goals that were established in 2004.

As part of the transformation process we are also actively reviewing the recommendations of the Secretary of Energy Advisory Board Nuclear Weapons Complex Infrastructure Task Force to prepare a comprehensive plan for transforming the nuclear weapons complex. Many of the recommendations are consistent with initiatives that NNSA was already considering or is implementing (design of a Reliable Replacement Warhead, consolidation of Special Nuclear Materials, accelerating dismantlement of retired weapons, managing the evolving complex to enhance responsiveness and sustainability, and establishing an Office of Transformation). The analysis of this report and its recommendations is underway and should be completed and presented to the Congress by this spring.

Transformation presents some significant near term challenges, one of which is pit production. The NNSA considers an appropriate pit production capacity to be essential to its long-term evolution to a more responsive nuclear weapons infrastructure. We are disappointed, therefore, that Congress declined to fund planning for a modern pit production facility in fiscal year 2006. As a result, we did not seek funding for this facility in fiscal year 2007; although we remain convinced that increased pit production capacity is essential to our long-term evolution to a more responsive nuclear weapons infrastructure. In coming months, we will work with Congress to identify an agreed approach to fund long-term pit production capacity. In the meantime, we plan to increase the Los Alamos National Laboratory pit manufacturing capacity to 30–40 pits per year by the end of fiscal year 2012 in order to support the Reliable Replacement Warhead. This production rate, however, will be insufficient to meet our assessed long-term pit production needs.

Another challenge of transformation is maintaining the balance between Life Extension Programs (LEP) for the current stockpile and development of the RRW and new infrastructure. The warhead LEP is key to our meeting the Department of Defense's (DOD) mission needs today and during transformation. These programs deserve special attention and I am concerned that fiscal year 2006 Congressional reductions for two warhead LEPs have challenged our ability to meet our deterrence needs. A reduction in the W76 LEP request significantly increased the risk to achieving a first production unit by the end of fiscal year 2007. Reductions to the W80 LEP request have delayed deployment of first production units and delayed the introduction of important use control features to strengthen security. We hope that this committee renews its support for these critical LEPs.

Another significant near term challenge is ensuring the security of our people, our nuclear weapons, our weapons-usable materials, our information, and our infrastructure from harm, theft or compromise. The job has become more difficult and costly as a result of two factors: the increased post-9/11 threat to nuclear warheads and associated fissile materials coupled with the primacy of "denying access" to these key assets—a much more rigorous security standard than "containment" of the asset. We will meet the requirements of the 2003 Design Basis Threat (DBT) by the end of this fiscal year. We expect to be compliant with the 2005 DBT revisions at the two most sensitive locations, the Secure Transportation Asset and the Pantex Weapons Plant by the end of fiscal year 2008 as required by Departmental policy.

The world in 2030 will not be more predictable than it is today, but this vision of our future nuclear weapons posture is enabled by what we have learned from 10 years of experience with science-based Stockpile Stewardship, from planning for and carrying out life extension programs for our legacy stockpile, and from coming to grips with national security needs of the 21st century as laid out in the NPR. A world of a successful responsive infrastructure isn't the only plausible future of course. But it is one we should strive for. It offers the best hope of achieving the President's vision of the smallest stockpile consistent with our Nation's security. That's why we are embracing this vision of stockpile and infrastructure transformation. We should not underestimate the challenge of transforming the enterprise, but it is clearly the right path for us to take.

Defense Nuclear Nonproliferation

Let me now turn to our nuclear nonproliferation and threat reduction programs. Acquisition of nuclear weapons, WMD capabilities, technologies, and expertise by rogue states or terrorists poses a grave threat to the United States and international security. The pursuit of nuclear weapons by terrorists and states of concern makes it clear that our threat detection programs are urgently required must be successful and must proceed on an accelerated basis. The NNSA budget request addresses this urgency and demonstrates the President's commitment to prevent, contain, and roll back the proliferation of nuclear weapons-usable materials, technology, and expertise.

Our programs are structured around a comprehensive and multi-layered approach to threat reduction and nuclear nonproliferation. We work with more than 70 countries to secure dangerous nuclear and radioactive materials, halt the production of fissile material, detect the illegal trafficking or diversion of nuclear material, and ultimately dispose of surplus weapons-usable materials. We also work with multilateral institutions including the International Atomic Energy Agency and the Nuclear Suppliers Group to strengthen nuclear safeguards and improve the nuclear export control regulatory infrastructure in other countries. This multi-layered approach is intended to identify and address potential vulnerabilities within the international nonproliferation regime, reduce the incentive for terrorists and rogue states to obtain WMD, and limit terrorists' access to deadly weapons and materials.

A significant amount of our work falls at the intersection of nonproliferation and peaceful use of nuclear materials. The United States is setting an example by making a firm commitment to reducing its nuclear arsenal and recycling substantial quantities of weapons-usable highly enriched uranium for peaceful, civilian, energy-generating purposes. In 1994, the United States declared 174 tons of highly enriched uranium (HEU) to be in excess of our national security needs. The great bulk of that material is now in the process of being down blended for use in civilian nuclear power reactors. Last year, we announced that 17.4 MT of this material will be down blended and set aside to establish a fuel bank in support of our efforts to develop an international reliable fuel supply mechanism, an issue I will return to later in my statement.

In addition, in May of 2004, President Bush announced plans to reduce our Nation's nuclear weapons stockpile by nearly half, to its smallest size since the Eisenhower Administration. This decision enables us to begin to dispose of a significant amount of weapons-grade nuclear material. Last year, the administration committed to remove an additional 200 metric tons of HEU—enough material for approximately 8,000 nuclear warheads—from any further use as fissile material in U.S. nuclear weapons This represents the largest amount of special nuclear material ever removed from the stockpile in the history of the U.S. nuclear weapons program. The bulk of this material will be retained for use in propulsion systems for our Nation's nuclear navy—a step that will allow us to postpone the need to construct a new uranium high-enrichment facility for at least 50 years. Twenty metric tons of this HEU will be down blended to LEU for use in civilian nuclear power reactors or research reactors.

We are also working with the Russian Federation to eliminate 34 metric tons of weapons-usable plutonium in each country that will be converted into MOX fuel and burned in nuclear power reactors. We believe we have now resolved the impasse over liability that has long delayed the plutonium disposition program and the construction of the MOX plant at our Savannah River site.

Much of our work focuses on emerging issues such as detecting clandestine nuclear supply networks, monitoring efforts by more countries to acquire nuclear weapons, and preventing the spread of nuclear fuel cycle technology. We have taken a number of steps to shut down illicit supply networks and keep nuclear materials out of the hands of terrorists as reflected in U.S. leadership in support of the Proliferation Security Initiative, Security Council Resolution 1540, criminalizing proliferation, and in strengthening international export control regimes.

We have worked to expand our programs designed to stop nuclear smuggling and nuclear terrorism by cooperatively developing and employing radiological and nuclear detection equipment at key border crossings, airports, and major seaports, or "megaports," worldwide. NNSA also assists and trains customs officials at home and abroad to detect the illicit trafficking of nuclear and radiological materials, as well as dual-use commodities that might be useful in weapons of mass destruction programs. We are also expanding our efforts to secure and transform global inventories of weapons-usable materials. Our programs include the Global Threat Reduction Initiative to reduce and secure fissile and radioactive material worldwide; our International Material Protection and Cooperation program, also known as "MPC&A", which has accelerated efforts to improve the security of weapons usable material in

Russia and elsewhere; and our efforts to complete the conversion of research reactors throughout the world to the use of low enriched uranium within the next decade. There are also two complementary programs that address the repatriation of fresh and spent HEU material from Russian-supplied research reactors and U.S.-origin material from research reactors around the world.

Cooperation with Russia on nonproliferation is nothing new for the United States, but this cooperation has been heightened following the rise of global terrorism and the events of September 11, 2001. The Joint Statement on Nuclear Security Cooperation issued by Presidents Bush and Putin at their Bratislava meeting last year is but one example of the significant progress we have made over the last 5 years. This joint statement has helped expedite our cooperative work with Russia. For example, as a result of the Bush-Putin Bratislava joint statement, we were able to make the return of fresh and spent HEU fuel from U.S.- and Russian-design research reactors in third countries a top priority, as well as a plan for joint work to develop low-enriched uranium fuel for use in these reactors. As a result, we were able complete the conversion of a Russian-supplied research reactor located in the Czech Republic to low-enriched fuel and to airlift a significant amount of HEU from the Czech Technical University reactor located near Prague for safe and secure storage in Russia. We have also made significant progress on the other Bratislava joint statement items, and we expect this cooperation and success will continue.

Beyond the threat of nuclear terrorism, illicit networks engaging in nuclear trade, and additional states seeking nuclear weapons capability, the nonproliferation community also faces another significant challenge—revitalizing nuclear energy throughout the globe in a manner that also advances our nonproliferation interests. We have the opportunity to reshape our collective approach to ensure that nonproliferation is the cornerstone of the next evolution of civilian nuclear power and fuel cycle technology. The challenge before us is to make sure we design—from the very beginning—technologies and political arrangements that limit the spread of sensitive fuel cycle capabilities and ensure that rogue states do not use a civilian nuclear power as cover for a covert nuclear weapons program.

Last month, the administration announced the Global Nuclear Energy Partnership, or GNEP, as part of President Bush's Advanced Energy Initiative. GNEP is a comprehensive strategy to enable an expansion of nuclear power in the United States and around the world, to promote nuclear nonproliferation goals; and to help resolve nuclear waste disposal issues. Fundamental to GNEP is a new approach to fuel cycle technology. Under this proposed new approach, countries with secure, advanced nuclear fuel cycle capabilities would offer commercially competitive and reliable access to nuclear fuel services—fresh fuel and recovery of used fuel—to other countries in exchange for their commitment to forgo the development of enrichment and recycling technology.

Over the next year, we will work with other elements of the Department to establish GNEP, paying special attention to developing advanced safeguards and developing the parameters for international cooperation. Since the signing of the Nuclear Non-Proliferation Treaty, the world has sought to prevent the proliferation of nuclear weapons while expanding the benefits of nuclear technology. I believe that GNEP takes us closer to that goal. By allowing us to move beyond abstract discussions to tangible actions that will benefit directly those who join us in this partnership. GNEP will offer us the opportunity to take the international lead in making nonproliferation an integral part of our global nuclear safety and security culture.

Naval Reactors

Also contributing to the Department's national security mission is the Department's Naval Reactors Program, whose mission is to provide the U.S. Navy with safe, militarily effective nuclear propulsion plants and ensure their continued safe, reliable and long-lived operation. Nuclear propulsion enhances our warship capabilities by providing the ability to sprint where needed and arrive on station; ready to conduct sustained combat operations when America's interests are threatened. Nuclear propulsion plays a vital role in ensuring the Navy's forward presence and its ability to project power anywhere in the world.

The Naval Reactors Program has a broad mandate, maintaining responsibility for nuclear propulsion from cradle to grave. Over 40 percent of the Navy's major combatants are nuclear-powered, including aircraft carriers, attack submarines, and strategic submarines, which provide the Nation's most survivable deterrent.

FISCAL YEAR 2007 BUDGET REQUEST BY PROGRAM

The President's fiscal year 2007 budget request totals $9.3 billion, an increase of $211 million or 2.3 percent. We are managing our program activities within a disciplined 5-year budget and planning envelope. We are doing it successfully enough

to be able to address the administration's high priority initiatives to reduce global nuclear danger in Defense Nuclear Nonproliferation, and provide for needed funding increases in some of our programs within an overall modest growth rate.

Weapons Activities

The fiscal year 2007 budget request for the programs funded within the Weapons Activities appropriation is $6.41 billion, less than a 1 percent increase over fiscal year 2006. This request supports the requirements of the Stockpile Stewardship Program consistent with the administration's Nuclear Posture Review (NPR) and the revised stockpile plan submitted to the Congress in June 2004. Our request places a high priority on accomplishing the near-term workload and supporting technologies for the stockpile along with the long-term science and technology investments to ensure the design and production capability and capacity to support ongoing missions. This request also supports the facilities and infrastructure that must be responsive to new or emerging threats.

Directed Stockpile Work (DSW) is an area of special emphasis this year with a fiscal year 2007 request of $1.41 billion, a 3 percent increase over fiscal year 2006. In fiscal year 2007, we will be accelerating efforts for dismantlement of retired warheads and consolidation of special nuclear materials across the nuclear weapons complex. Both of these efforts will contribute to increasing the overall security at NNSA sites. DSW also supports routine maintenance and repair of the stockpile; refurbishes warheads through the Life Extension Programs; and, maintains the capability to design, manufacture, and certify new warheads, for the foreseeable future. DSW also supports managing the strategy, driving the change, and performing the crosscutting initiatives required to achieve responsiveness objectives envisioned in the NPR. Our focus remains on the stockpile, to ensure that the nuclear warheads and bombs in the U.S. nuclear weapons stockpile are safe, secure, and reliable.

Progress in other parts of the Stockpile Stewardship Program continues. The fiscal year 2007 request for the six Campaigns is $1.94 billion, a 9 percent decrease from fiscal year 2006. The Campaigns focus on scientific and technical efforts and capabilities essential for assessment, certification, maintenance, and life extension of the stockpile and have allowed NNSA to move to "science-based" stewardship. These campaigns are evidence of NNSA excellence and innovation in science, engineering and computing that, though focused on the nuclear weapons mission, have much broader application.

Specifically, $425 million for the Science and Engineering Campaigns provides the basic scientific understanding and the technologies required to support the workload and the completion of new scientific and experimental facilities. We will continue to maintain the ability to conduct underground nuclear tests at the Nevada Test Site if required, but let me be clear, nothing at this time indicates the need for resumption for underground testing for the foreseeable future.

The Readiness Campaign, with a request of $206 million, develops and delivers design-to-manufacture capabilities to meet the evolving and urgent needs of the stockpile and supports the transformation of the nuclear weapons complex into an agile and more responsive enterprise.

The request of $618 million for the Advanced Simulation and Computing Campaign supports the schedule to enhance the computational tools and technologies necessary to support the continued assessment and certification of the refurbished weapons, aging weapons components, and a Reliable Replacement Warhead program without underground nuclear tests. As we enhance these tools to link the historical test base of more than 1,000 nuclear tests to computer simulations, we can continue to assess whether the stockpile is safe, secure, reliable, and performs as required.

The $451 million request for the Inertial Confinement Fusion Ignition and High Yield Campaign is focused on the execution of the first ignition experiment at the National Ignition Facility (NIF) in 2010 and provides facilities and capabilities for high-energy-density physics experiments in support of the Stockpile Stewardship Program. To achieve the ignition milestone, $255 million will support construction of NIF and the NIF Demonstration Program and $168 million will support the National Ignition Campaign. The ability of NIF to assess the thermonuclear burn regime in nuclear weapons via ignition experiments is of particular importance. NIF will be the only facility capable of probing in the laboratory the extreme conditions of density and temperature found in exploding nuclear weapons.

The Pit Manufacturing and Certification Campaign request of $238 million continues work to manufacture and certify the W88 pit in 2007 and to address issues associated with manufacturing future pit types including the Reliable Replacement Warhead and increasing pit production capacity at Los Alamos National Laboratory.

Readiness in Technical Base and Facilities (RTBF) and Facilities and Infrastructure Recapitalization Program (FIRP)

In fiscal year 2007 we are requesting $1.98 billion for the maintenance and operation of existing facilities, remediation and disposition of excess facilities, and construction of new facilities. This is of critical importance to enable NNSA to move toward a more supportable and responsive infrastructure.

Of this amount, $1.69 billion is requested for Readiness in Technical Base and Facilities (RTBF), an increase of 3 percent from fiscal year 2006, with $1.4 billion in Operations and Maintenance and $281 million for RTBF Construction. RTBF operates and maintains current facilities, and ensure the long-term vitality of the NNSA complex through a multi-year program of infrastructure construction.

This request also includes $291 million for the Facilities and Infrastructure Recapitalization Program (FIRP), a separate and distinct program that is complementary to the ongoing RTBF efforts. The FIRP mission is to restore, rebuild and revitalize the physical infrastructure of the nuclear weapons complex. FIRP works in partnership with RTBF to assure that facilities and infrastructure are restored to an appropriate condition to support the mission, and to institutionalize responsible and accountable facility management practices. FIRP activities include reducing deferred maintenance, recapitalizing the infrastructure, and reducing the maintenance base by eliminating excess real property. The FIRP Recapitalization projects are key to restoring the facilities that house the people, equipment, and material necessary to the Stockpile Stewardship Program, the primary NNSA mission. FIRP Facility Disposition activities reduce Environment, Safety and Health (ES&H) and safeguards and security liabilities, address footprint reduction of the complex, and reduce long-term costs and risks. The primary objective of FIRP Infrastructure Planning is to ensure that projects are adequately planned in advance of project start.

Last year the Congress significantly reduced funds for the FIRP program. This reduction, coming on reductions in planned levels dictated by fiscal constraints, means that the original (and Congressionally mandated) goal of eliminating the maintenance backlog and terminating the FIRP program by 2011 is no longer attainable. This matter may require legislation extending the FIRP program to 2013. We remain committed to the concept of FIRP as a temporary, "get well" program and to the long term, sustained funding of maintenance within the RTBF program.

Secure Transportation Asset

In fiscal year 2007, the budget requests $209 million for Secure Transportation Asset (STA), a minor decrease from fiscal year 2006 levels, for meeting the Department's transportation requirements for nuclear weapons, components, and special nuclear materials shipments. The workload requirements for this program will escalate significantly in the future to support the dismantlement and maintenance schedule for the nuclear weapons stockpile and the Secretarial initiative to consolidate the storage of nuclear material. The challenge to increase secure transport capacity is coupled with and impacted by increasingly complex national security concerns. To support the escalating workload while maintaining the safety and security of shipments, STA is increasing the cumulative number of Safeguard Transporters in operation by three per year, with a target total of 51 in fiscal year 2011.

Environmental Projects and Operations

We are requesting $17.2 million for Environmental Projects and Operations. The $17.2 million request is for a new function, Long Term Response Actions/Long-Term Stewardship, which covers continuing environmental stewardship at NNSA sites after the completion of Environmental Management activities. This new program at each site begins when EM cleanup activities are completed, and will continue for several years. Activities comprise routine inspections of landfill covers/caps, and maintenance of pump and treatment systems, and starting in fiscal year 2007, will be performed at three NNSA sites: Lawrence Livermore National Laboratory, Kansas City Plant, and Sandia national laboratories.

The fiscal year 2007–2011 Budget Request does not include the transfer of legacy environmental management activities at NNSA sites that was proposed in the fiscal year 2006 Budget Request. However, the responsibility for newly generated waste at the Lawrence Livermore National Laboratory and the Y–12 National Security Complex was transferred to the NNSA in fiscal year 2006, and is managed in the Readiness in Technical Base and Facilities GPRA unit.

Nuclear Weapons Incident Response

The fiscal year 2007 request for Nuclear Weapons Incident Response is $135 million, an increase of 15 percent over fiscal year 2006. The NNSA Emergency Operations remains the U.S. Government's primary capability for radiological and nu-

clear emergency response in support of Homeland Security. The program is continuing efforts to enhance Emergency Response capabilities, and the budget request supports all assets as planned, with emphasis on recruitment and training of personnel called into action during emergency situations. The fiscal year 2007 increase is primarily associated with the research and development efforts of the Render Safe Research and Development program. This budget realigns this research and development funding to Emergency Response where the program is managed.

Safeguards and Security

The fiscal year 2007 request for Safeguards and Security is $754 million. This budget supports two security-related activities. The budget request proposes that the physical security portion of NNSA's Safeguards and Security GPRA Unit be renamed "Defense Nuclear Security", consistent with the responsible NNSA organization. This program is responding to a revision in threat guidance affecting physical security at all NNSA sites. Meeting the Design Basis Threat will require further upgrades to equipment, personnel and facilities, and NNSA is committed to completing these activities. The Cyber Security program activities, managed by the NNSA Chief Information Officer, comprise the rest of this account, and the fiscal year 2007 request is essentially level with the fiscal year 2006 funding level. The Request includes funding for the DOE Diskless Conversion initiative. Meeting the post-9/11 security requirements has required a significant long-term investment, reflecting DOE's continuing commitment to meet these requirements.

Defense Nuclear Nonproliferation

The Defense Nuclear Nonproliferation program goal is to detect, prevent, and reverse the proliferation of Weapons of Mass Destruction (WMD) while mitigating nuclear risk worldwide. Our programs address the danger that hostile nations or terrorist groups may acquire weapons of mass destruction or weapons-usable material, dual-use production or technology, or WMD capabilities. Our primary focus in this regard is securing or disposing of vulnerable stockpiles of weapon-usable materials, technology, and expertise in Russia and other countries of concern. The administration's request of $1.73 billion to support NNSA activities to reduce the global weapons of mass destruction proliferation threat represents almost a 7 percent increase over the budget for comparable fiscal year 2006 activities.

The administration's fiscal year 2007 Fissile Material Disposition budget request is $638 million, an increase of $169 million over fiscal year 2006. This increase reflects the progress in implementing the plutonium disposition program in the past year. Of this amount, $551 million will be allocated toward disposing of surplus U.S. and Russian plutonium and $87 million will be allocated toward the disposition of surplus U.S. highly enriched uranium. The plutonium disposition program, the Department's largest nonproliferation program, plans to dispose of 68 metric tons (MT) of surplus Russian and U.S. weapons-grade plutonium by fabricating it into mixed oxide (MOX) fuel for use in civilian nuclear power-generating reactors. The United States and Russia successfully completed negotiations of a liability protocol for the program, and senior Russian government officials have assured the United States that this protocol will be signed in the near future. DOE has also been working to validate the U.S. MOX project cost and schedule baseline as part of our project management process, and we will have a validated baseline in place before construction begins. DOE received authorization to begin construction of the MOX facility from the Nuclear Regulatory Commission, began site preparation work for the MOX facility at the Savannah River Site, and implemented a number of improvements to strengthen the management of the MOX project. Current plans call for construction of the U.S. MOX facility to start in 2006, with operations to start in 2015. The administration's budget request is essential for continuing this work in fiscal year 2007, which will be a peak construction year. Now that the liability issue is nearing resolution, high-level U.S.-Russian discussions are taking place to confirm the technical and financial details for the Russian construction program.

The administration's fiscal year 2007 budget request of $107 million for the Global Threat Reduction Initiative (GTRI) is a 10 percent increase over fiscal year 2006 and supports the urgency carried in ambitious completion dates and objectives set by the program. GTRI represents the Department's latest effort to identify, secure, recover, and/or facilitate the disposition of the vulnerable nuclear and radioactive materials worldwide that pose a threat to the United States and the international community. Since the creation of GTRI, we have enjoyed a number of successes. Under our radiological threat reduction program, we have completed security upgrades at more than 340 facilities around the world. As a result of the Bush-Putin Bratislava joint statement on enhanced nuclear security cooperation, we have established a prioritized schedule for the repatriation of U.S.-origin and Russian-origin

research reactor nuclear fuel located in third countries. As part of our nuclear materials threat reduction efforts under GTRI, three successful shipments in fiscal year 2005 to repatriate Russian-origin fresh highly enriched uranium (HEU) from the Czech Republic (two shipments) and Latvia.

In accordance with the President's Bratislava commitment, we have also begun working with the Russian Federation to repatriate Russian-origin spent fuel. We have also conducted several successful shipments to repatriate U.S.-origin spent nuclear fuel from Japan, the Netherlands, Sweden, Greece, and Austria. We have converted three research reactors in the Netherlands, Libya, and the Czech Republic from the use of HEU to the use of low-enriched uranium (LEU) fuel so far in 2006, and we have completed physical security upgrades at three priority sites housing dangerous materials in Ukraine, Kazakhstan, and Uzbekistan.

The International Material Protection and Cooperation fiscal year 2007 budget request of $413 million is a 2 percent decrease from fiscal year 2006. For more than a decade, the United States has worked cooperatively with the Russian Federation and other former Soviet republics to secure nuclear weapons and weapons material that may be at risk of theft or diversion. As part of the Bush-Putin Bratislava joint statement, we agreed to accelerate security upgrades at Russian sites holding weapons-usable materials and warheads. The Bratislava joint statement also provided for a comprehensive joint action plan for cooperation on security upgrades of Russian nuclear facilities at Rosatom and Ministry of Defense sites. In addition, this statement called for enhanced cooperation in the areas of nuclear regulatory development, sustainability, secure transportation, MPC&A expertise training, and protective force equipment. A number of major milestones for this cooperative program are on the horizon, and the fiscal year 2007 budget ensures that sufficient funding will be available to meet these milestones. Security upgrades for Russian Rosatom facilities will be completed by the end of 2008—2 years ahead of schedule. By the end of 2008 we will also complete cooperative upgrades at the nuclear warhead storage sites of the Russian Strategic Rocket Forces and the Russian Ministry of Defense sites. By the end of fiscal year 2007, we will have provided security upgrades at more than 80 percent of all the nuclear sites in Russia at which we now plan cooperative work.

The administration's budget request will enable us to expand and accelerate the deployment of radiation detection systems at key transit points within Russia and accelerate installation of such equipment in five other priority countries to prevent attempts to smuggle nuclear or radiological materials across land borders. Through our Megaports initiative, we plan to deploy radiation detection capabilities at three additional major seaports in fiscal year 2007 to pre-screen cargo containers destined for the United States for nuclear and radiological materials, thereby increasing the number of completed ports to 13.

The fiscal year 2007 budget request of $207 million for the Elimination of Weapons Grade Plutonium Production (EWGPP) is an increase of 18 percent from fiscal year 2006. The EWGPP program is working toward complete the permanent shut down of the three remaining weapons grade plutonium production reactors in Russia at Seversk and Zheleznogorsk. Every week, these reactors currently produce enough fissile material for several nuclear weapons. The overall EWGPP plan is to shutdown these reactors permanently and replace the heat and electricity these reactors supply to local communities with energy generated by fossil fuel plants by December 2008 in Seversk and December 2010 in Zheleznogorsk. The reactors will shut down immediately when the fossil plants are completed. The first validated estimate of total program cost—$1.2 billion—was determined in January 2004. After extensive negotiations with Russia, we achieved $200 million in cost savings. Also, under the authority to accept international funding as provided in the Ronald W. Reagan Defense Authorization Act for fiscal year 2005, we have received pledges of $30 million from six Global Partnership participants. Construction of the fossil fuel plant at Seversk started in late 2004, and the start of construction of the fossil fuel plant at Zheleznogorsk was recently approved. The increased funding as part of the fiscal year 2007 budget request allows for both construction projects to remain on schedule and thereby hold the line on cost.

The fiscal year 2007 budget requests $269 million for Nonproliferation and Verification Research and Development. This effort includes a number of programs that make unique contributions to national security by researching the technological advancements necessary to detect and prevent the illicit diversion of nuclear materials. The Proliferation Detection program advances basic and applied technologies for the nonproliferation community with dual-use benefit to national counter-proliferation and counter-terrorism missions. Specifically, this program develops the tools, technologies, techniques, and expertise for the identification, location, and analysis of the facilities, materials, and processes of undeclared and proliferant

WMD programs. The Proliferation Detection program conducts fundamental research in fields such as radiation detection, providing support to the Department of Homeland Security (DHS) and the Intelligence Community. The Nuclear Explosion Monitoring program builds the Nation's operational sensors that monitor from space the entire planet to detect and report surface, atmospheric, or space nuclear detonations. This program also produces and updates the regional geophysical data sets enabling operation of the Nation's ground-based seismic monitoring networks to detect and report underground detonations.

The fiscal year 2007 budget request for Nonproliferation and International Security is $127 million. This figure cannot be directly compared to fiscal year 2006 because of a budget structure change that has realigned the Global Initiatives for Proliferation Prevention and HEU Transparency programs to this GPRA unit. Through this program the Department provides technical and policy expertise in support of U.S. efforts to strengthen international nonproliferation institutions and arrangements, fosters implementation of nonproliferation requirements through engagement with foreign partners, and helps develop the mechanisms necessary for transparent and verifiable nuclear reductions worldwide. This budget request addresses our need to tackle key policy challenges including efforts to strengthen the IAEA safeguards system, attempts to block and reverse proliferation in Iran and North Korea, attention to augmenting U.S. cooperation with China, India, and Russia, and our plan to build-up the nonproliferation component of the Global Nuclear Energy Partnership.

Naval Reactors

The Naval Reactors fiscal year 2007 budget request of $795 million is an increase of $13.5 million from fiscal year 2006. The Program's development work ensures that nuclear propulsion technology provides options for maintaining and upgrading current capabilities, as well as for meeting future threats to U.S. security.

The majority of funding supports the Program's No. 1 priority of ensuring the safety and reliability of the 104 operating naval nuclear propulsion plants. This work involves continual testing, analysis, and monitoring of plant and core performance, which becomes more critical as the reactor plants age. The nature of this business demands a careful, measured approach to developing and verifying nuclear technology; designing needed components, systems, and processes; and implementing them in existing and future plant designs. Most of this work is accomplished at Naval Reactors' DOE laboratories. These laboratories have made significant advancements in extending core lifetime, developing robust materials and components, and creating an array of predictive capabilities.

Long-term Program goals have been to increase core energy, to achieve life-of-the-ship cores, and to eliminate the need to refuel nuclear powered ships. Efforts associated with this objective have resulted in planned core lives that are sufficient for the 30-plus year submarine (based on past usage rates) and an extended core life planned for CVN 21 (the next generation aircraft carrier). The need for nuclear propulsion will only increase over time as the uncertainty of conventional fuel cost and availability grows.

Naval Reactors' Operations and Maintenance budget request is categorized into six areas: Reactor Technology and Analysis; Plant Technology; Materials Development and Verification; Evaluation and Servicing; Advanced Test Reactor (ATR) Operations and Test Support; and Facility Operations.

The $212 million requested for Reactor Technology and Analysis will support continued work on the design for the new reactor plant for the next generation of aircraft carriers, CVN–21. These efforts also support the design of the Transformational Technology Core (TTC), a new high-energy core that is a direct outgrowth of the Program's advanced reactor technology and materials development and verification work.

Reactor Technology and Analysis also develops and improves the analysis tools, which can be used to safely extend service life beyond our previous experience base. The increasing average age of our Navy's existing reactor plants, along with future extended service lives, a higher pace of operation and reduced maintenance periods, place a greater emphasis on our work in thermal-hydraulics, structural mechanics, fluid mechanics, and vibration analysis. These factors, along with longer-life cores, mean that for years to come, these reactors will be operating beyond our previously proven experience base.

The $131 million requested for Plant Technology provides funding to develop, test, and analyze components and systems that transfer, convert, control, and measure reactor power in a ship's power plant. Reactor plant performance, reliability, and safety are maintained through a full understanding of component performance and system condition over the life of each ship. Naval Reactors is developing components

to address known limitations and to improve reliability of instrumentation and power distribution equipment to replace aging, technologically obsolete equipment. Additional technology development in the areas of chemistry, energy conversion, instrumentation and control, plant arrangement, and component design will continue to support the Navy's operational requirements.

The $118 million requested for Materials Development and Verification funds material analyses and testing to provide the high-performance materials necessary to ensure that naval nuclear propulsion plants meet Navy goals for extended warship operation and greater power capability. More explicitly, materials in the reactor core and reactor plant must perform safely and reliably for the extended life of the ship.

The $179 million requested for Evaluation and Servicing sustains the operation, maintenance, and servicing of Naval Reactors' operating prototype reactor plants. Reactor core and reactor plant materials, components, and systems in these plants provide important research and development data and experience under actual operating conditions. These data aid in predicting and subsequently preventing problems that could develop in Fleet reactors. With proper maintenance, upgrades, and servicing, the two prototype plants will continue to meet testing needs for at least the next decade.

Evaluation and Servicing funds also support the implementation of a dry spent fuel storage production line that will put naval spent fuel currently stored in water pits at the Idaho Nuclear Technology and Engineering Center and at the Expended Core Facility (ECF) on the Naval Reactors facility in Idaho into dry storage. Additionally, these funds support ongoing decontamination and decommissioning of inactive nuclear facilities at all Naval Reactors sites to address their "cradle to grave" stewardship responsibility for these legacies, and minimize the potential for any environmental releases.

The $64.6 million requested for Advanced Test Reactor Operations and Test Support sustains the ongoing activities of the INL ATR facility, owned and operated by the Office of Nuclear Energy (NE), Science, and Technology.

In addition to the budget request for the important technical work discussed above, program direction and facilities funding is required for continued support of the Program's operations and infrastructure. The $57 million requested for facilities operations will maintain and modernize the Program's facilities, including the Bettis and Knolls laboratories as well as ECF and Kesselring Site Operations (KSO), through capital equipment purchases and general plant projects. The $2.8 million requested for construction funds will be used to complete construction of a materials development facility and to support the design of a materials research technology complex. Finally, the $31.2 million requested for program direction will support Naval Reactors' DOE personnel at Headquarters and the Program's field offices, including salaries, benefits, travel, and other expenses.

Office of the Administrator

The fiscal year 2007 budget request of $387 million, and increase of 14.2 percent over the fiscal year 2006 appropriation. NNSA completed the reengineering of its Federal workforce last year and has begun to recruit to fill critical skill gaps in safety, security, facilities, and business positions, in addition to the Future Leaders Intern program initiated in fiscal year 2005. The fiscal year 2007 request increases to provide additional personnel and support for mission growth in the Defense Nuclear Nonproliferation area, as well as in safety and security functions. The remainder of the increase reflects functional transfers to NNSA of 18 people from other Departmental elements, and fact of life changes including pay adjustments, increased space and occupancy charges, and cost of living increases in pay and benefits. We plan to support a slightly higher workforce level than in previous years, reflecting support for mission growth areas and skill gap closures.

Historically Black Colleges and Universities Support

A research and education partnership program with the Historically Black Colleges and Universities (HBCU) and the Massie Chairs of Excellence was initiated by the Congress in the Office of the Administrator appropriation in fiscal year 2005 and fiscal year 2006. NNSA has established an effective program to target national security research opportunities for these institutions to increase their participation in national security-related research and to train and recruit HBCU graduates for employment within NNSA. The NNSA's goal is a stable $10 million effort annually. The majority of the efforts directly support program activities, and it is expected that programs funded by the Weapons Activities, Defense Nuclear Nonproliferation and Naval Reactors appropriations will fund research with the HBCUs in areas including engineering, radiochemistry, material and computational sciences and sen-

sor development. A targeted effort in education and curriculum development, and support for the Massie Chairs, will also be continued.

MANAGEMENT ISSUES

NNSA has fully embraced the President's Management Agenda through the completion of the NNSA re-engineering initiative by creating a more robust and effective NNSA organization. Additionally, NNSA's success has been recognized with consistently "Green" ratings from the DOE, including Budget and Performance Integration. NNSA's Planning, Programming, Budgeting and Evaluation (PPBE) process was implemented simultaneously with the standup of the new NNSA organization, and is now the established management construct that integrates management, financial data and performance information in a multi-year context.

The PPBE process is in its fifth year of implementation, and provides a fully integrated, multi-year perspective. The linkages within NNSA mirror the Headquarters and field organization structures, and are supported by management processes, contracting, funds control and accounting documentation. The cascade and linkages are quite evident in our updated NNSA Strategic Plan, issued last November.

We take very seriously the responsibility to manage the resources of the American people effectively and I am glad that our management efforts are achieving such results.

Finally, to provide more effective supervision of high-hazard nuclear operations, I have established a Chief, Defense Nuclear Safety position and appointed an experienced safety professional to the position. I believe this will help us balance the need for consistent standards with my stress on the authority and responsibility of the local Site Managers.

CONCLUSION

In conclusion, I am confident that we are headed in the right direction. Our budget request will support continuing our progress in protecting and certifying our nuclear deterrent, transforming our stockpile and infrastructure, reducing the global danger from proliferation and weapons of mass destruction, and enhancing the force projection capabilities of the U.S. nuclear Navy. It will enable us to continue to maintain the safety and security of our people, information, materials, and infrastructure. Above all, it will meet the national security needs of the United States of in the 21st century.

Mr. Chairman, this concludes my statement. A statistical appendix follows that contains the budget figures supporting our request. My colleagues and I would be pleased to answer any questions on the justification for the requested budget.

NATIONAL NUCLEAR SECURITY ADMINISTRATION: APPROPRIATION AND PROGRAM SUMMARY TABLES, OUT-YEAR APPROPRIATION SUMMARY TABLES

FISCAL YEAR 2007 BUDGET TABLES

NATIONAL NUCLEAR SECURITY ADMINISTRATION APPROPRIATION AND PROGRAM SUMMARY

[In millions of dollars]

	Fiscal Year 2005 Current Appropriations	Fiscal Year 2006 Original Appropriation	Fiscal Year 2006 Adjustments	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Request
National Nuclear Security Administration (NNSA):					
Office of the Administrator	363.4	341.9	−3.4	338.5	386.6
Weapons Activities (after S&S WFO offset)	6,625.5	6,433.9	−64.3	6,369.6	6,407.9
Defense Nuclear Nonproliferation	1,508.0	1,631.2	−16.3	1,614.8	1,726.2
Naval Reactors	801.4	789.5	−7.9	781.6	795.1
Total, NNSA	9,298.3	9,196.5	−92.0	9,104.5	9,315.8

Note.—The fiscal year 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, Public Law 109–148.

The NNSA budget justification contains information for 5 years as required by Sec. 3253 of Public Law 106–065. This section, entitled Future-Years Nuclear Security Program (FYNSP), requires the Administrator to submit to Congress each year the estimated expenditures necessary to support the programs, projects and activi-

ties of the NNSA for a 5-year fiscal period, in a level of detail comparable to that contained in the budget.

OUT-YEAR APPROPRIATION SUMMARY NNSA FUTURE-YEARS NUCLEAR SECURITY PROGRAM (FYNSP)

[In millions of dollars]

	Fiscal Year 2007	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
NNSA:					
Office of the Administrator	387	394	402	410	418
Weapons Activities (after S&S offset)	6,408	6,536	6,667	6,800	6,936
Defense Nuclear Nonproliferation	1,726	1,761	1,796	1,832	1,869
Naval Reactors	795	811	827	844	861
Total, NNSA	9,316	9,502	9,692	9,886	10,084

WEAPONS ACTIVITIES FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2005 Current Appropriation	Fiscal Year 2006 Original Appropriation	Fiscal Year 2006 Adjustments	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Request
Weapons Activities:					
Directed Stockpile Work	1,351,206	1,386,189	−13,862	1,372,327	1,410,268
Science Campaign	277,253	279,464	−2,794	276,670	263,762
Engineering Campaign	258,767	250,411	−2,504	247,907	160,919
Inertial Confinement Fusion Ignition and High Yield Campaign	536,756	549,073	−5,491	543,582	451,191
Advanced Simulation and Computing Campaign	698,196	605,830	−6,058	599,772	617,955
Pit Manufacturing and Certification Campaign	263,570	241,074	−2,411	238,663	237,598
Readiness Campaign	265,472	218,755	−2,188	216,567	205,965
Readiness in Technical Base and Facilities	1,657,712	1,647,885	−3,130	1,644,755	1,685,772
Secure Transportation Asset	199,709	212,100	−2,121	209,979	209,264
Nuclear Weapons Incident Response	98,427	118,796	−1,188	117,608	135,354
Facilities and Infrastructure Recapitalization Program	313,722	150,873	−1,508	149,365	291,218
Environmental Projects and Operations	.....	.....	.....	.....	17,211
Safeguards and Security	751,929	805,486	−7,735	797,751	754,412
Subtotal, Weapons Activities	6,672,719	6,465,936	−50,990	6,414,946	6,440,889
Use of Prior Year Balances	−16,372	.....	−13,349	−13,349	.....
Security Charge for Reimbursable Work	−30,000	−32,000	.....	−32,000	−33,000
Transfer to the Office of the Administrator for Pajarito	−3,205	.....	.....	.....	.....
Undistributed Budget Authority[1]	2,400	.....	.....	.....	.....
Total, Weapons Activities	6,625,542	6,433,936	−64,339	6,369,597	6,407,889

[1] Results from application of the 0.8 percent across-the-board rescission against the gross Weapons Activities appropriation prior to receipt of the $300,000,000 which was derived by transfer from the Department of Defense in accordance with Public Law 108–447.

Note.—The fiscal year 2006 adjustments column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, Public Law 109–148. It also reflects the approval of the following reprogrammings for Readiness in Technical Base and Facilities using prior year funding—Savannah River General Plant Projects and Project 03–D–102, National Security Sciences Building.

Public Law Authorization.—Public Law 109–163, National Defense Authorization Act, fiscal year 2006; Public Law 109–103, Energy and Water Development Appropriations Act, 2006.

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Weapons Activities:				
Directed Stockpile Work	1,381,893	1,431,364	1,462,287	1,494,962
Science Campaign	282,223	281,344	274,296	268,441
Engineering Campaign	169,012	152,114	149,639	147,584
Inertial Confinement Fusion Ignition and High Yield Campaign	426,035	415,222	414,823	400,013
Advanced Simulation and Computing Campaign	632,095	621,943	607,746	593,761
Pit Manufacturing and Certification Campaign	249,588	252,174	260,096	255,832
Readiness Campaign	202,636	198,090	192,401	187,659
Readiness in Technical Base and Facilities	1,767,586	1,833,813	1,907,510	2,008,941
Secure Transportation Asset	225,057	237,344	244,212	247,580
Nuclear Weapons Incident Response	137,766	140,019	142,332	144,701
Facilities and Infrastructure Recapitalization Program	310,369	339,257	368,054	396,996
Environmental Projects and Operations	17,518	17,805	18,099	18,400
Safeguards and Security	768,269	781,279	794,608	808,235
Subtotal, Weapons Activities	6,570,047	6,701,768	6,836,103	6,973,105
Security Charge for Reimbursable Work	–34,000	–35,000	–36,000	–37,000
Total, Weapons Activities	6,536,047	6,666,768	6,800,103	6,936,105

MAJOR OUT-YEAR CONSIDERATIONS

[In thousands of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Weapons Activities	6,570,047	6,701,768	6,836,103	6,973,105

DEFENSE NUCLEAR NONPROLIFERATION FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2005 Current Appropriation	Fiscal Year 2006 Original Appropriation	Fiscal Year 2006 Adjustments [1]	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Request
Defense Nuclear Nonproliferation and Verification:					
Nonproliferation Research and Development	219,836	322,000	−3,220	318,780	268,887
Nonproliferation and International Security	143,764	75,000	−750	74,250	127,411
International Nuclear Materials Protection and Cooperation	403,451	427,000	−4,270	422,730	413,182
Global Initiatives for Proliferation Prevention	40,675	40,000	−400	39,600	.....
HEU Transparency Implementation [1]	20,784	19,483	−195	19,288	.....
Elimination of Weapons-Grade Plutonium Production	67,331	176,185	−1,762	174,423	206,654
Fissile Materials Disposition	619,060	473,508	−4,735	468,773	637,956
Offsite Recovery Project	7,540	.....	.....	.....	.....
Global Threat Reduction Initiative	.....	97,975	−980	96,995	106,818
Subtotal, Defense Nuclear Nonproliferation	1,522,441	1,631,151	−16,312	1,614,839	1,760,908
Use of Prior Year Balances	−14,475	.....	.....	.....	−34,695
Total, Defense Nuclear Nonproliferation	1,507,966	1,631,151	−16,312	1,614,839	1,726,213

[1] This budget request includes an across-the-board rescission of 1 percent for fiscal year 2006 in accordance with the Department of Defense Appropriations Act 2006, Public Law 109–148.

Note.—The fiscal year 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, Public Law 109–148.
Public Law Authorization.—Public Law 108–148, The Consolidated Appropriations Act, 2006.

OUT-YEAR FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Defense Nuclear Nonproliferation:				
Nonproliferation and Verification Research and Development	279,439	293,924	311,551	324,034
Nonproliferation and International Security	132,458	134,706	138,835	146,990
International Nuclear Materials Protection and Cooperation	403,351	444,405	530,723	542,859
Elimination of Weapons Grade Plutonium Production	182,017	139,363	24,949	.....
Fissile Materials Disposition	642,853	654,469	710,178	737,976
Global Threat Reduction Initiative	120,619	129,085	115,635	116,649
Total, Defense Nuclear Nonproliferation	1,760,737	1,795,952	1,831,871	1,868,508

MAJOR OUT-YEAR CONSIDERATIONS

[In thousands of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Defense Nuclear Nonproliferation	1,760,737	1,795,952	1,831,871	1,868,508

NNSA describes major out-year considerations at each GPRA-Unit level within this appropriation.

NAVAL REACTORS FUNDING PROFILE BY SUBPROGRAM

[In thousands of dollars]

	Fiscal Year 2005 Current Appropriation	Fiscal Year 2006 Original Appropriation	Fiscal Year 2006 Adjustments	Fiscal Year 2006 Current Appropriation	Fiscal Year 2007 Request
Naval Reactors Development (NRD):					
Operations and Maintenance	765,041	728,800	−7,288	721,512	761,176
Program Direction	29,264	30,300	−303	29,997	31,185
Construction [1]	7,132	30,400	−304	30,096	2,772
Subtotal, Naval Reactors Development	801,437	789,500	−7,895	781,605	795,133
Use of Prior Year Balances	.....	.....	.....	.....	.....
Total, Naval Reactors	801,437	789,500	−7,895	781,605	795,133

[1] In the Conference report to Public Law 109–103, Congress directed that NR transfer $13.5 million to DOE-NE to support the Advanced Test Reactor (ATR) Life Extension Program (LEP). However, the report included the $13.5 million specified for ATR under the Construction Heading Vice Operations and Maintenance. The additional $13.5 million has been transferred to NE to support the LEP (NR total transfer to NE for ATR in fiscal year 2006 was $70.8 million). Actual NR Construction requirements in fiscal year 2006 are $16.9 million.

Note.—The fiscal year 2006 column includes an across-the-board rescission of 1 percent in accordance with the Department of Defense Appropriations Act, 2006, Public Law 109–148.

Public Law Authorization.—Public Law 83–703, ''Atomic Energy Act of 1954''; Executive Order 12344 (42 U.S.C. 7158), ''Naval Nuclear Propulsion Program''; Public Law 107–107, ''National Defense Authorization Act of 2002'', Title 32, ''National Nuclear Security Administration''; Public Law 108–375, National Defense Authorization Act, Fiscal Year 2005; Public Law 108–447, The Consolidated Appropriations Act, 2005; Public Law 109–163, National Defense Authorization Act, 2006.

OUT-YEAR FUNDING SCHEDULE

[In thousands of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Naval Reactors	811,036	827,257	843,802	860,678

MAJOR OUT-YEAR CONSIDERATIONS

[In thousands of dollars]

	Fiscal Year 2008	Fiscal Year 2009	Fiscal Year 2010	Fiscal Year 2011
Naval Reactors:				
Operations and Maintenance	765,186	777,407	780,702	804,078
Program Direction	32,700	33,900	35,100	35,900
Construction	13,150	15,950	28,000	20,700
Total, Naval Reactors	811,036	827,257	843,802	860,678

NNSA describes major out-year considerations at each GPRA-Unit level within this appropriation.

PLUTONIUM DISPOSITION

Senator DOMENICI. Thank you very much.

Could we talk first about MOX?

Ambassador BROOKS. Yes, sir.

Senator DOMENICI. First, I am surprised by the lack of detail in your statement regarding MOX. Your statement makes no mention of the fact that the Department is rebaselining the entire program and that cost estimates have increased to over $3 billion. It makes no mention of the steps the Department is taking to respond to the DOE IG report, which found that we lack sufficient contractor oversight, which has contributed to the increased costs.

It also fails to mention that the Russians have made it clear that they will no longer pay for the operations of MOX if they are limited to using the fuel in light water reactors, in the same manner as the United States. Apparently the Russians have made a unilateral decision that their only interest is in fast reactors.

Finally, I am becoming increasingly frustrated that the Russians continue to stall the final approval of the liability agreement. I believe the Russians are now the biggest liability facing the program and we should sever the link between the construction projects.

So I have questions since your statement fails to mention any of these issues. Could you update the committee on them and what are you doing to improve the contract oversight and to rein in the contractor?

Ambassador BROOKS. Certainly, sir. Let me start with the Russian program first. Every Russian official at every level continues to assure us that the holdup in giving final approval to the liability agreement is entirely procedural. I share your frustration. I will note, however, that the Russian bureaucracy is legendary for taking a long time to do even simple things. So the information we have as recently as 2 weeks ago is an assurance from very senior Russians that there is no issue.

Second, the Russians have made it clear that they will dispose of plutonium in light water reactors as we had envisioned if the entire cost is borne by the international community. The Russians have interpreted the 2000 agreement as suggesting that. I believe the United States does not interpret it that way. In any event, the State Department and the Russians and I believe that we are unlikely to raise all of the operating money from the international community. Therefore, to preserve our options to go in both direc-

tions we are working with the Russians on disposing of some fuel in an existing fast reactor called the BN–600.

The BN–600 was envisioned in 2000 as one method for disposition and it is not a new idea. It is new that it is seen as the primary approach. Part of this effort would be to remove the blanket that makes it a breeder and to do that in a way that is verifiable to the United States.

I share your view that it would be lunacy to use surplus plutonium in order to make more plutonium and I do not believe the Russians have any interest in that and we would certainly not agree to it.

That would then allow a potential path forward. The BN–600 cannot eliminate all the 34 tons of MOX in any reasonable time. It would simply prove the technology and allow a Russian-planned reactor called the BN–800, not yet built, to be a path for disposition.

We intend to work with the Russians to continue to ensure that they live up to their end of the agreement. At the same time, I no longer believe that holding up U.S. construction is in our interest. I believe that because of the need to meet our own obligations and the relationship between a credible disposition path and material consolidation, that construction should go forward in South Carolina.

With regard to the Government Accountability Office and the cost increase, there are three reasons for the cost increase. One reason is that the initial figures we gave the Congress in 2002 were in constant 2001 dollars and we are now looking at out-year dollars.

The second reason is that the initial figures we gave the Congress were based on an erroneous, as it turns out, belief that we would have an optimal funding profile and that has not proved feasible. As a result, our strategy now is to fund at a constant rate. So it is probable that the 2008 request will be very similar to the 2007 request. That is more efficient from the standpoint of orderly budgeting. It is less efficient from the standpoint of construction, so there is an increase.

Then, as you correctly noted, we have had some management problems. Some of them have been caused by the protracted delay. Some of them have been caused by reductions, understandable reductions, based on the Russian delay. We are renegotiating the contract with DCS, the contractor. We decided to renegotiate rather than to recompete because I believe it is important to get on with it. We will have a 100 percent incentive fee. We will have stronger accountability and we will have new contractor management, and I believe that these steps will in fact give us greater assurance. I do not want to overpromise, Mr. Chairman. The Department's record on large-scale construction projects is not one of the things to be hugely proud of. But I believe that we are now on top of this and that we will be able to go forward in a responsible manner.

Senator DOMENICI. Maybe this is not a question for you, but let us just talk about this anyway. Why are we doing these things we are doing for the Russians? We started this program, these programs—the first of the kind was Nunn-Lugar. It took 3, 4, 5 years for it to get operating. It is about 20 years old. At that point we

had lots of potential proliferation around and the Russians had no money and things were really going to hell in a handbag.

It was hard at first for Americans to get the idea that we ought to give them help, but we did, and we got into this in a big way. We got three major programs that we call nonproliferation in the world and almost all of the money goes to something that is Russian, including the safeguard program. That is still going in, is it not, where we make sure things are guarded properly?

Ambassador BROOKS. Yes, sir. Yes, sir.

Senator DOMENICI. That is American money to safeguard things over there.

Ambassador BROOKS. Yes, sir.

Senator DOMENICI. The reason I say I do not know if it is for you to answer, but why do we still do these things for Russia? Why do they not do it themselves?

Ambassador BROOKS. Well, increasingly they are, sir, and I agree.

Senator DOMENICI. Wait a minute. You agree with what?

Ambassador BROOKS. I agree with what I take to be your view, that it is increasing for them to bear the burden of doing their own efforts.

We support improving security in Russian nuclear material for the same reason we did when you and others started it, because we believe that it is the way you protect the United States.

Senator DOMENICI. Absolutely.

Ambassador BROOKS. The best way to keep nuclear material out of the hands of those who would do us harm is at the source.

At the same time, we are coming to the end of that phase and President Bush and President Putin have explicitly stated at Bratislava they want to see us move from assistance to partnership. We are going to finish our work in improving Russian security in 2008. In fact, the Russians have already picked up a substantial—some of the sites that when I sat before you last year I expected we would be doing, the Russians are now going to be doing.

We are shifting our effort to much more of a collaborative understanding of sharing best practices, of working on how we make sure that they sustain this effort. So I think that, although perhaps less rapidly than you might like, we are moving away from sending money there.

Senator DOMENICI. Well, I appreciate your answer, and I have not been back to Russia since we started this a long time ago. It was all different people and a completely different government, so I do not know how they feel or what they think about this dialogue here today.

But this whole business of MOX and plutonium disposition and the 34 tons that we made a deal on, made an agreement on, it is incredible to me that they are ready to pay for all of this. It has taken us so long to get something done that it would appear to me this is in their benefit as much as ours or more. And we are having so much trouble getting it done.

That is why I am pleased to hear you say that we ought to—you did not use my language of "de-link" because that is too strong a word, but you indicated we should proceed——

Ambassador BROOKS. Yes, sir.

Senator DOMENICI [continuing]. If I heard you right.

Ambassador BROOKS. Yes, sir, you did hear it right.

Senator DOMENICI. You can rest assured that in the appropriations process to the extent that we can have anything to do with that, that is what we are going to say. It is a long way, we've been waiting long enough. America has a rare chance to make a breakthrough with MOX that we waited 25 years to do and should have done, and we just as well get on with it.

I think the State that has agreed it has some empathy, deserves some empathy, too. They cannot sit around forever and wait either. Maybe others do not understand that, but we do. It is a tough program.

Ambassador BROOKS. Thank you, sir.

Senator DOMENICI. So we understand each other on MOX, and on plutonium disposition what I have described is what we are going to do, and you can decide as the legislation moves through what the administration's position is going to be.

Ambassador BROOKS. Yes, sir.

NATIONAL IGNITION FACILITY

Senator DOMENICI. All right. The NIF budget. Does the fiscal year 2007 budget support the administration's goal of ignition by 2010?

Ambassador BROOKS. Yes, sir, it does.

Senator DOMENICI. Do you agree with the JASON's report on the NIF ignition plan, that it was fair and an accurate estimate of the NIF program?

Ambassador BROOKS. It was, and what it said was that they agree that we will be able to conduct the ignition experiment in 2010. They are less confident whether the first experiment will work, and we share this view. This is something that has never been done before. But we were pleased to see the JASON's report support the basic notion that the program is on track to conduct an ignition experiment in 2010. We intend to keep it on track.

Senator DOMENICI. Well, they say that—the JASON report, which you believe to be an accurate report, stated that 2010 ignition was "unrealistic." If this top-caliber review believes this goal is unrealistic, then why should we support a budget request that makes deep cuts in all these other programs to support this program that says it is unrealistic to expect the 2010 ignition?

Ambassador BROOKS. Respectfully sir, what they said was that it was realistic to assume that we could meet our goal to conduct the experiment in 2010, that it was not clear—if you say they used the word "unrealistic," I accept that; I do not remember it when I read the report—that it was not clear whether the first experiment would succeed.

I will say it is unrealistic to assume that the first time you try anything that has never been done before that you can guarantee it is going to work. I do not want to suggest that I am promising the committee that we will achieve ignition on the first try. I believe that we will conduct an experiment in 2010. I believe we have a chance that it will work. But they call it research because we have not done it yet.

So I do think that the decisions we have made are sound, although I think that we will try to start shifting some resources as we get through this peak period in the NIF, I think we will try to shift some resources back to using some of the other tools in inertial confinement fusion. For example, the Z refurbishment project will be complete in fiscal 2007, and I think that we did in fact reduce the amount of money that went into some of the other valuable areas like Z and Omega.

Senator DOMENICI. Well, the people at NIF know where this Senator stands and I stand by watching and waiting and hoping that it works. It is one of the biggest gambles I have ever voted for and, looking back on it, while I take great pride in saying I really love big science, that is one I would like to go back and see whether my arms would fit around it again. I am not quite sure they would.

But, having said that, I see another Senator here and I have lots of questions, but he does not have as many as me, nor as much time. Would you have questions at this point?

STATEMENT OF SENATOR WAYNE ALLARD

Senator ALLARD. Well, I do, Mr. Chairman, and thank you. Thank you for holding this hearing today. I do have a full statement I would like to make a part of the record if I might.

Senator DOMENICI. It will be made a part of the record.

[The statement follows:]

PREPARED STATEMENT OF SENATOR WAYNE ALLARD

Thank you Mr. Chairman for the opportunity to attend this hearing today.

Ambassador Brooks, it is a pleasure to see you again. I enjoyed our meeting a couple of weeks and appreciate your taking the time to stop by. I want you to know that I support you and the rest of Department. I look forward to working with you this year.

Mr. Chairman, I believe the Bush Administration has received far too little credit for its efforts to reduce proliferation and reduce the threat of a nuclear conflict. Many folks still have not recognized that the Treaty on Strategic Offensive Reductions (Moscow Treaty) will reduce the size of the U.S. stockpile to a level that has not been seen in 50 years. Indeed, we are pulling weapons out of the stockpile so fast that the Department of Energy had to double its fiscal year 2007 budget request for dismantlement of nuclear weapons.

And, the administration hasn't stopped there. Under your leadership, Ambassador Brooks, we are moving forward with the reliable replacement warhead program, which could further reduce the number of weapons in our stockpile. I think those who oppose this program have not really looked at it closely.

Their opposition to the RRW program does not make sense when the only alternative is the costly refurbishment process. Their opposition certainly does not make sense if, as promised, this program results in significantly greater reductions in our stockpile.

I firmly believe that nuclear weapons remain a critical element of our national security and are a significant deterrent to potential adversaries. The threat has not gone away and is unlikely to do so in the distant future. I think we can be much smarter and much more efficient in how we approach the stockpile without losing the effectiveness that we require. Programs like the reliable replacement warhead are a right step in this direction.

Thank you Mr. Chairman for the opportunity to speak today. I look forward to the Ambassador Brook's testimony.

CHANGES IN THE NUCLEAR WEAPONS COMPLEX

Senator ALLARD. I have a news release here where Mr. D'Agostino prepared a statement, I guess yesterday to the House, laying out the future of the nuclear weapons complex. I am won-

dering if maybe you might go into—as you know, I am interested in that.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. And I wonder if you might go into a little more detail than what I am seeing here.

Ambassador BROOKS. Certainly, sir.

Senator DOMENICI. I see he is here. Whoever wants to do it.

Ambassador BROOKS. Well, let me.

Senator ALLARD. Okay. Well, we can have—whatever, just so I get an answer.

Ambassador BROOKS. Let me try.

Senator DOMENICI. Sure.

Ambassador BROOKS. We have pretty much all the knowledge we have got in this room, so we can tell you where we are going.

We have for the last couple of years been looking at the question of the complex of the future. We had an external look done by the Secretary of Energy Advisory Board, and we received the report late last year. That external look recommended moving very quickly to a single site for everything that involves uranium and plutonium at a location yet to be determined and it made a number of other recommendations, many of which we have adopted.

Our approach to the future of the complex has a number of parts. First, we intend to continue to emphasize the development of the Reliable Replacement Warhead because if we can simplify the ability to maintain and improve warheads then any complex can be made more efficient. So we see that as good in itself, but also as an enabler for the improved complex.

Second, we believe that one of our weaknesses today which we do not need to wait for the future is that the complex does not function in an integrated manner. Deputy Administrator D'Agostino has already put out guidance to make our incentive package for each of the sites based in part on the ability of the whole complex to meet its requirements.

Third, we think that we should dramatically reduce the number of places where we do plutonium and uranium work, both for efficiency, but in order to reduce the cost of security. For uranium, we believe that the investments we are making and have planned at Y–12 make it the long-term uranium, highly enriched uranium center for the United States. We are building a facility called the Highly Enriched Uranium Materials Facility, which will be the storage facility, the Fort Knox of uranium, if you wish, and we will be working with the Congress in coming years to build a facility next to it where all the uranium processing work is done.

Putting these two facilities next to each other will do two things. It will dramatically reduce the number of buildings that actually have material in it and it will dramatically shrink the area that we have to guard and protect.

With regard to plutonium, we believe that we should consolidate by the early 2020's essentially all plutonium work, both in making pits and in doing research on plutonium, at a single facility. Until that facility exists, the capability at Los Alamos will provide the interim capability.

We believe that the long-term future of the weapons labs—and we do not know where that plutonium facility should go, but our

general view is it should go at an existing site that uses category I and category II material. We do not think it is particularly worth the physical and political cost of moving plutonium to places where it has never been.

As a result, we intend to over time eliminate having special nuclear material at the three weapons laboratories. Sandia, which has the Sandia Pulse Reactor, has the primary material. We will finish the last series of experiments on that reactor later this year and we will be in a position to make Sandia special nuclear material-free.

We expect to begin moving material out of Livermore in 2008. I would like to be a little fuzzy right now about where we are going to put it, but we are going to begin moving it and intend to have Livermore free of special nuclear material by 2012. One precursor to that is obviously we want both Los Alamos and Livermore to continue to have intellectual involvement in plutonium metallurgy, which is so crucial to the stockpile, and we are going to have to work arrangements so that can be done from a single consolidated site.

Ultimately, if Los Alamos does not become the site of the new plutonium center, we would much later move out of Los Alamos. We intend to create a new non-nuclear production facility by 2012. Our facility in Kansas City is one of our best-run and best-managed facilities, but it is still operated as a government-owned, contractor-operated facility. It still has 3 million square feet of floor space and the United States does not need that, and we intend to move toward a different kind of facility. We still believe that there are things that need to be made under direct contract to us, that not all non-nuclear components can you simply go out and procure. But we want to move to more commercial procurement where that is appropriate.

We intend to make it clear to the Congress and the American people and the world that this is not the start of some new arms race, by accelerating the rate at which we dismantle weapons. Between 2006 and 2007, we will have a 50 percent increase in dismantlement and we are still looking at what we can do in the outyears.

Finally, we intend to look with regard primarily to the laboratory complex. We believe that we should retain the three existing laboratories. We believe that we should work more diligently than we have to look at the one of a kind facilities as user facilities that truly support the entire complex. We also think that over time the more complex high explosive experiments should be centralized in Nevada.

Then finally we have recently, inspired, to be candid, by some outside looks, we have concluded that any kind of complex—we have gotten too risk-averse. We have emphasized fourth decimal point analyses of safety over the expense of getting things done. So we are in the process of a series of internal looks to make sure that, whatever the complex of the future is, it will be operated more efficiently.

So that is the broad approach. There are a number of things in this budget that will contribute to that approach, but we will obviously be working with the Congress in the coming years, most par-

ticularly as we start the process of making site selection for this consolidated plutonium center.

NUCLEAR MATERIALS

Senator ALLARD. You are thinking the disposal site would be at Yucca Mountain in Nevada?

Ambassador BROOKS. I am assuming that at the moment. The complex makes—we make two assumptions. One is that, with regard to plutonium disposition, that it will leave the weapons system, if you will, through Savannah River. In terms of high-level disposal, that is not our formal responsibility, but we are obviously assuming that Yucca is where—for example, I believe that almost certainly we will continue to decide we have too much plutonium and I believe that we will turn more and more of it into MOX fuel and that will go in commercial reactors, and the output of that is just like the output of any other commercial reactor. And at the moment Yucca is where that is slated to go.

Senator ALLARD. Yes.

Ambassador BROOKS. But there is relatively little that goes directly from the weapons program into Yucca.

Senator ALLARD. You are passing it through the MOX facility——

Ambassador BROOKS. Yes, sir.

Senator ALLARD [continuing]. Which right now we have at Savannah River.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. And that is also used to reprocess spent nuclear rods.

Ambassador BROOKS. Well, the MOX facility does not at the moment.

Senator ALLARD. It does not?

Ambassador BROOKS. No, sir.

Senator ALLARD. Okay, but it has the capability to do that?

Ambassador BROOKS. No, sir.

Senator ALLARD. We would have to build another facility to do that?

Ambassador BROOKS. Yes. The Department—I want to distinguish between things for which I have responsibility.

Senator ALLARD. Okay.

Ambassador BROOKS. The Department as part of the global nuclear energy initiative will be recommending, has recommended, that we move to the construction of some demonstration facilities for both reprocessing and for an advanced burner reactor. We do not have sites located for that and they are not in the NNSA area of responsibility.

Senator ALLARD. And those sites would be the MOX Plus, is that correct?

Ambassador BROOKS. I think that it is probably a better way to think of them as really sort of separate issues. The time scales are different. The principle is different. We looked at whether or not we should somehow combine all of this in one galactic program and decided we should not.

Senator ALLARD. So, moving on then, if we should get in—we are going to have more nuclear power plants. If we are going to decide

to reprocess those rods, you are thinking of a separate facility altogether.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. And in that process you will use—if I say the "Plus MOX," you know what I'm talking about.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. I do not know what your official technology is there. But it is an enhanced reprocessing.

Ambassador BROOKS. Yes, sir. The vision that we have now—when I say "we" I do not mean NNSA; I mean the administration generally—for the future of nuclear power has a number of components, but it is based on the belief that we should not plan to put once-through fuel in a geologic repository because *(a)* you are going to use up all the space available, and *(b)* you are in fact putting a lot of energy content there; and finally, you are putting a huge amount of stuff with very long half-lives, which means that you have to analyze for periods that are probably beyond our capability.

So the idea is that we would take the fuel that comes out of traditional light water reactors, we would reprocess that through a new approach not previously used, that will give us a trans-uranic fuel, if you will, a fuel that is plutonium plus other trans-uranic isotopes, and that that fuel will go into fast reactors.

What this will do for you is—there is still sooner or later going to be stuff that is going to go in a geologic repository. But the volume will be reduced substantially and the peak dose period will be reduced substantially and you will get more of the energy content out of the fuel.

If you do that, then what you have to do is guard against any question that you are harming our traditional nonproliferation approach, which is one of the reasons the United States has been skeptical of reprocessing in the past. Our approach is to reprocess in a way that is different from traditional reprocessing and that makes the fuel less interesting—I do not want to say uninteresting, but less interesting from a proliferation perspective—but then also to create a global regime of essentially fuel leasing. That is not exactly the term we use, but where only a limited number of States would do this reprocessing and those are States with traditional strong safeguards.

So what we think all this will do is it will allow us to meet the future energy needs through nonpolluting nuclear power, it will allow us to do that in a way that does not require small countries to bear all the burden of disposal, because large countries would send them fuel and then take it back for reprocessing, and that would not put us in the situation where we are now, where, depending on your projections of future nuclear power, we need nine more Yucca Mountains this century, which I think most of us believe are not likely to be easy to find.

Senator ALLARD. Thank you, Mr. Chairman. His response took longer than I anticipated.

Ambassador BROOKS. My apologies.

Senator ALLARD. I figured you would be interested in it, so I did not try and cut his response short. Thank you.

Senator DOMENICI. It is all right. I was interested.

Senator ALLARD. I figured you would share some interest there.

Senator DOMENICI. I already knew about it, but I was interested.

Senator ALLARD. I hope I did not duplicate a previous question you asked.

Senator DOMENICI. No, no.

I think the new word that we are all trying to use is "recycling".

Senator ALLARD. Yes, recycle.

Senator DOMENICI. Instead of "reprocessing".

Senator ALLARD. That is correct.

Ambassador BROOKS. Yes, sir.

Senator ALLARD. It is an enhanced recycling process.

Senator DOMENICI. Yes, it is recycling. And the process we are going to use has not been used before in full-scale. That is why this process is pretty risky, because it is going to take a long time. Everything sounded so nice, but you see, that means you are going to have Yucca sitting over here waiting for this new recycled fuel. It has got to wait over there, circling the globe, for about 30 years, it looks to me, 20, 30 years.

I do not quite know how we are going to get legislation passed to do that.

Senator ALLARD. Are we not in the courts on that right now, Mr. Chairman?

Senator DOMENICI. Yes. But we have got to pass something soon deciding what happens to the Yucca property.

Senator ALLARD. I see.

Senator DOMENICI. The real estate, the railroads, and the physical site. And in doing that, we have got to kind of decide, kind of say what we are going to use it for, so Harry Reid will know. If nothing else, we have got to tell him. Right now we are telling him, it looks like we are telling the world we are going to put spent fuel rods in there.

You just heard him say we are not going to do that. He said it round-about. But everybody is saying we are not going to do that. So we have got a facility that we are moving in that direction and we are not going to use it for that. We have got to change the law and say what is it we are going to use it for.

And we have got one hang-up. There is a law that says we have got to put military waste in that facility, and we do not quite understand how that fits. I do not know, the Ambassador may have negotiated that arrangement. Maybe he knows. That is a big one. But if that was not in the way, we could make Yucca sit over there for 30 years and wait for this new recycled material.

You understand, this new recycled material is a fantastic achievement, human achievement, if it works. Just remember this number: you reduce the quantity a hundred-fold. So if you are going to put a spent fuel rod in and it was going to take 100 cubic feet and you do this recycling, it is going to be one cubic foot of material. That is pretty interesting, is it not?

Senator ALLARD. It is, and I have seen part of that process.

Senator DOMENICI. The process, what you have got left over is very easy to handle because it does not have the half-life that he spoke of generally.

Senator ALLARD. With the enhanced process. I think that is wonderful.

Senator DOMENICI. Right, terrific. Well, that is the President's GNEP program. That is what we are going to try to do. We do have some money in here; we are going to start it.

Senator ALLARD. Good.

Senator DOMENICI. Two hundred forty million dollars, $250 million. But that is such a little down payment. Japan is interested, India is interested. Maybe we can start it and turn into an international program. They might be willing to help us pay for it.

I am willing to give it a shot if I could figure out how Yucca fits in the middle of this.

Senator ALLARD. Well, I am with you, Mr. Chairman.

LOS ALAMOS NATIONAL LABORATORY

Senator DOMENICI. We will work on it.

Let me talk down to these things that are important to people in New Mexico: the pension program over there at LANL. I sent you a letter urging you to oppose the University of California's efforts to separate the LANL pension from the broader university retirement system. I got your letter, in which you indicated you did not have enough information. Has anything changed since you wrote me the letter that might affect the LANL retirees?

Ambassador BROOKS. I continue to be absolutely committed, as I told you before, to making sure they are treated fairly. I continue to have nothing from the university other than what I have heard in the press. I am told that a letter will arrive shortly explaining what the university proposes. I have not seen it yet as of this morning. So I know nothing more than I knew when I signed the letter.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Senator DOMENICI. I have one question on GNEP. Mr. Paul, can you please tell me what the NNSA role is in the Global Nuclear Energy Partnership and what NNSA's budget provided for 2007 to 2011? Can you do that or, Mr. Ambassador, you do it, whichever?

Ambassador BROOKS. Mr. Paul is up here.

Mr. PAUL. Thank you for the question, Mr. Chairman. We just recently as of last week reached an understanding with the Office of NE, the Nuclear Energy Office, about the areas where NNSA would play in Global Nuclear Energy Partnership. They are, in broad categories: the development of the advanced safeguards and security technologies that are a key element to GNEP. They are the establishment of the reliable fuel services bank, that independent central bank, the 17.4 metric tons designated HEU to be blended down to LEU to allow recipient States to access that energy, in return for not developing a fuel cycle indigenously. And thirdly, providing the primary support for establishing the "G" and the "P" part of "GNEP," the global partnership portion, that is putting together the supplier group partnership that you eloquently alluded to, France, Japan, Russia, China, United Kingdom, ourselves, with strong involvement by the IAEA, and potentially others, as well as the recipient State partnership, those countries that would forswear developing an in-house capability.

Those are the three primary areas where the NNSA and largely NA–20, the nonproliferation shop, would play a lead role. The most

significant area where we anticipate a budget impact would be in developing the safeguards technologies. We do not have a specific request in the 2007 budget for that because it is an extension of the current safeguard technology advancement work that we are doing, for example, at the Rekasho site in Japan. But we anticipate in the near future having a budget request tailored to those three areas, Mr. Chairman.

Senator DOMENICI. I had two other questions with reference to GNEP and that pertain to you, Mr. Paul. I am going to submit them. You can answer them for the record.

Mr. PAUL. Thank you, sir.

Senator DOMENICI. You have got 10 days, whatever it takes. We have some further questions that we will submit in writing, Mr. Ambassador.

Senator, do you have any further question, either now or that you want to submit?

ADDITIONAL COMMITTEE QUESTIONS

Senator ALLARD. I may have a couple of questions to submit later on, Mr. Chairman.

Senator DOMENICI. All right. The record will be open for a couple of days for you to submit them.

Senator ALLARD. That would be good, thank you. I will review with my staff.

Senator DOMENICI. All right. If there are no further questions, we stand recessed, and we thank you for your testimony.

Oh, I have one last thing, Mr. Ambassador. I make it as an observation and I should have done it in my opening remarks and I apologize. You still have a lot of contracts for big construction projects and big pieces of equipment and big things. You are still a big stuff guy. NIF is a big project, getting it finished. I want to make sure that you know that, even though we did not go through project by project, that we are asking you clearly to make sure that somebody is watching and being careful that those programs are being managed properly.

We do not want overmanagement. That is, we do not want 10 people managing the same thing. But we do not want to get caught with big errors that should have been found out months and months earlier dropped on our head at the last minute on any of these programs and projects. We have been told that that is not going to happen any more, and I would just like your thoughts on the subject. I know we have got new management in one laboratory and you have got a lot of other things going, but could you address that issue, please?

Ambassador BROOKS. And we also have new management at the Nevada Test Site, that started its transition today or yesterday and will be taking over this summer.

The Secretary has made it very clear that he expects us to do a much better job at making promises that we can keep and then keeping our promises, and he regards stating that we are going to build something for a fixed amount of money in a fixed time as a promise. So he has made it very clear that he expects us to improve the Department's historic performance.

Our performance right now is pretty good on those things that we have done before and pretty bad on these large, one-of-a-kind projects. But we are gradually improving. We are absolutely committed to doing what you just told me to do, sir.

Senator DOMENICI. Well, let us hope that that is the case. We do not have a lot of latitude in these budgets any more. We cannot have another NIF with a $200 million, $300 million, $400 million disparity. We cannot pay for them. That is all there is to it. So I hope we are not going to destroy some laboratory because somebody makes a mistake.

Ambassador BROOKS. I have no intention of doing that, sir.

[The following questions were not asked at the hearing, but were submitted to the agency for response subsequent to the hearing:]

QUESTIONS SUBMITTED BY SENATOR PETE V. DOMENICI

NATIONAL IGNITION FACILITY—COSTS AND FUNDING

Question. Do we understand the costs of each of the three facilities (NIF, Z, and Omega)? Specifically: What is the relative cost of full-energy experiments on each facility?

Answer. The current cost for a full energy shot at the Omega laser system is $10,000 per shot which includes operational costs of people and material, (including optics replacements) to operate the laser and full cost of laser and experimental diagnostics. Following completion of the OMEGA Extended Performance (EP) Project, the cost per shot for both OMEGA and OMEGA EP full energy operations will be approximately $25,000.

In steady state operations, the equivalent facility cost at NIF will be approximately $550,000 per full energy shot.

For the refurbished Z (ZR), the equivalent cost is approximately $100,000 per full energy shot.

Question. Do we understand the costs of each of the three facilities (NIF, Z, and Omega)? Specifically: What will be the annual costs for activities at each facility in 2011—specifically what are the budgets from RTBF, Campaigns, DSW, and other activities such as DOE Office of Science and WFO at NIF, Z and Omega?

Answer. In 2011, the annual facility costs for the National Ignition Facility (NIF), OMEGA and ZR will be approximately $150 million, $25 million and $30 million respectively.

In the fiscal year 2007 budget submission, 2011 facility and operations costs for OMEGA and NIF all appear in the Inertial Confinement Fusion Ignition and High Yield Campaign. The operations costs for ZR are in the Readiness in Technical Base and Facilities budget line.

Program costs for the design and execution of experiments at these facilities are borne by Campaigns, Directed Stockpile Work, etc. Campaigns (other than the Inertial Confinement Fusion Ignition and High Yield Campaign) do not pay for facility or operations costs.

Question. Although the NNSA is investing significant resources in understanding and mitigating the issue of optics damage on NIF, we understand that the present estimated cost of replacement optics on NIF is $900,000 for each full energy shot. We also understand that the operational costs of NIF have increased from the original estimate of $60 million per year to the present estimate of ~$150 million in fiscal year 2010.

How do you measure the benefits realized from the costs at each facility—both benefits to the overall high-energy density physics program and the NW program?

Answer. The annual operational cost estimate for the National Ignition Facility (NIF) has remained essentially constant in as-spent dollars since the new project baseline was established in fiscal year 2001. There have been (and will continue to be) refinements in the estimates based on experience in operating the facility and changing economic conditions. Optics refurbishment costs are modeled using observations from the NIF Early Light campaign and off-line laboratory data and are consistent with the annual operational cost estimate to meet the 2010 and 2011 goals and steady state operations.

The cost estimate for replacement/refurbishment of NIF optics is $30 million per year during steady state operations. This covers the full spectrum of energies

planned for the experimental campaigns and corresponds to a per-shot optics refurbishment cost ranging from approximately $40,000 to $400,000.

The benefits of NIF, OMEGA, and Z are measured by the degree to which they meet Stockpile Stewardship Program requirements. Experiments at these three facilities support weapon assessment and certification and are required to meet level 1 and 2 milestones contained in National Nuclear Security Administration (NNSA) implementation plans. As discussed in the 2001 NNSA High Energy Density Physics Study Report, each facility has unique capabilities and is a component of the integrated NNSA high energy density physics program. As an example, experiments conducted in fiscal year 2003 through fiscal year 2005 at OMEGA were essential in validation of a new Advanced Simulation and Computing (ASC) weapon secondary performance simulation code. Validation of this code was a major ASC milestone completed in December 2005. Z has executed important experiments in materials science, nuclear weapon effects, and will shortly execute materials science experiments with special nuclear materials. NIF will examine issues related to thermonuclear burn in nuclear weapons and other important uncertainties that can only be addressed via access to the extreme conditions of matter NIF provides. NIF experiments in the thermonuclear burn area will address "the most important outstanding issue in weapon physics," as stated by the Defense Science Board in the summer of 2004. NIF ignition will also provide a critical integrated test of NNSA's simulation code and design capability.

Question. What steps have been taken at each facility to minimize experimental costs and optimize scientific return? Has consideration been given to conducting staging experiments on smaller facilities in order to obtain optimal return from the high-cost experiments on NIF?

Answer. Sandia National Laboratories (SNL) has effectively implemented a "six sigma" process which has been used to increase efficiency and reduce costs at Z and other Sandia facilities. The National Ignition Facility (NIF) Project has engaged external industrial participants and reviewers to carefully examine processes for installation of laser components and other "mass-production" like tasks required to complete the NIF Project. This has been important to the NIF Project achieving its cost, scope and schedule targets and will also enable efficient operations once the project is complete. The University of Rochester utilizes a rigorous process to extract the maximum number of OMEGA experiments in a given timeframe. Experimental scheduling and facility configuration are managed so as to allow the maximum amount of experimental shots per week.

OMEGA and Z/ZR use a peer review process to judge experiments proposed for each facility. OMEGA and Z/ZR each have "facility directors" who are charged by NNSA with providing an experimental program that meets NNSA requirements and best satisfies the needs of Stockpile Stewardship. Evaluation of the performance of Z/ZR and its contribution to stockpile stewardship are a component of the NNSA annual evaluation of SNL. Similar processes will be in place for NIF following Project completion.

The Inertial Confinement Fusion Campaign has always employed a staging strategy so as to allow effective use of all facilities. For the case of NIF, all National Ignition Campaign participants are engaged in developing integrated plans for optimally utilizing National Nuclear Security Administration facilities (OMEGA, Z/ZR and Trident) in support of the ignition goal. Integrated Experimental Teams with representation from all sites communicate regularly to develop and review plans for performing specific experiments at OMEGA, Z/ZR and Trident. As an example, hundreds of shots per year will be executed at OMEGA in support of the NIF indirect drive program between now and fiscal year 2010. When NIF is in full operation, a portion of OMEGA time will continue to be devoted to staging of experiments for NIF.

Question. Given the high cost of experiments on NIF, does the NNSA plan to have users other than the ICF program pay full cost recovery to utilize NIF?

Answer. The cost of National Ignition Facility (NIF) operations for Defense Programs and other Department of Energy users will be paid for directly by the National Nuclear Security Administration (NNSA). This is the same model used for OMEGA, Z/ZR, and other major NNSA facilities. NNSA also intends to pay the operational costs for the small fraction of NIF devoted to university use, in the same manner that operational costs for university use of OMEGA are covered.

Operational costs for users external to NNSA and the Department of Energy will be paid for by the users. A few such experiments are under discussion but none are currently planned or funded.

NATIONAL IGNITION FACILITY BUDGET

Question. Does the fiscal year 2007 budget support the administration's goal of ignition by 2010?

Answer. Yes, the National Ignition Facility Project and the National Ignition Campaign are presently on schedule and within budget. The President's budget supports ignition experiments commencing in 2010.

Question. Do you agree that the JASON report on the NIF ignition plan was a fair and accurate estimate of the NIF program?

Answer. The National Nuclear Security Administration (NNSA) agrees that the JASON report provides a valuable analysis of the ignition campaign including many useful recommendations. NNSA has already begun to implement many of these suggestions.

NNSA does not, however, agree with all of the details of the report. In particular, we do not believe that there was adequate recognition of the role the advanced target design has played. In the last few years, advanced design has increased the margin for the first experiments making ignition possible for laser energies of one mega joule.

Question. The JASON report, which you believe to be an accurate report, stated that ignition by 2010 was "unrealistic." If this top-caliber scientific review believes this goal to be "unrealistic", then why should we support a budget request that makes deep cuts to non-NIF sciences, such as Z, and makes reductions in the Science and Engineering Accounts to support a goal that is "unrealistic"?

Answer. It is important to recognize the context in which the JASON used the term "unrealistic." To quote their report, "While it is not impossible that everything will work 'just so' in the very first ignition attempts, it is unrealistic to expect that to happen. However, that first campaign will be followed by two others in 2011, and each experiment will move the program toward the goal of achieving fusion ignition." In using the word "unrealistic" JASON is describing their assessment of the likely outcome of the first few shots (i.e., "very first ignition attempts") as opposed to the overall probably of success of the ignition campaign.

The JASON report gave the following overall assessment of the plan for the pursuit of ignition: "The Program has identified a series of tests of the key physical processes and diagnostic instruments that provides a reasonable roadmap for progress toward ignition after the initial attempts." The JASON report also states: "First attempts to achieve ignition on NIF are likely to take place in 2010—this is an important and valuable goal that has strongly focused the efforts of the NIF Program."

In summary, JASON believes that while the initial attempts at ignition will not succeed, execution of the first ignition experiment promptly in 2010 will benefit the program, and the overall plan to achieve ignition is reasonable.

Question. Your budget increases NIF experimentation, Demonstration and Ignition budgets by over $50 million. At the same time funding for non-NIF related science is down by $115 million. Funding for Z is cut by $30 million. I was also disappointed to learn that you have moved the entire Z machine budget to the Readiness and Technical Base and Facilities Account and removing it entirely from the inertial Confinement and High Yield Science Campaign.

I believe the NIF-at-all-cost-attitude of your organization is short-sighted and irresponsible. Please explain why you ignored congressional direction to establish a balanced program for the ICF campaign?

Answer. Of the $115 million quoted, at least $60 million represents congressional add-on activities which, while technically valuable, could not continue to be supported in the fiscal year 2007 budget request due to higher priorities and budget constraints. The $30 million figure quoted for reduction at Z does not include Readiness in Technical Base and Facilities funds intended for Z operations. Accounting for this, places the reduction at about $14 million.

The construction of the National Ignition Facility (NIF) and the execution of ignition experiments is a major commitment for the National Nuclear Security Administration (NNSA) and the Department of Energy. As stated in the 2001 High Energy Density Physics Study Report, however, a viable program at OMEGA, Z/ZR, and NIF is also needed to support Stockpile Stewardship. NNSA has maintained an adequate program at these three major facilities since the inception of NIF; however, budget constraints make this impossible in fiscal year 2007. The fiscal year 2007 budget request for the Inertial Confinement Fusion and High Yield Campaign is $85 million less in total than the fiscal year 2007 Inertial Confinement Fusion and High Yield Campaign Future Years Nuclear Security Program budget shown in the fiscal year 2005 NNSA budget request.

NNSA has chosen to reduce experimental availability at Z/ZR in fiscal year 2007 in order to maintain the schedule of the National Ignition Campaign as defined in the plan submitted to Congress in June 2005. This reflects the importance of NIF and the ignition program. As the Z machine will be down for refurbishment in fiscal year 2007, the reduction to Z operations will impact the facility for only the latter portion of the year. NNSA intends to operate Z at the level required to support Stockpile Stewardship Program goals in fiscal year 2008. Experiments not conducted at Z/ZR in fiscal year 2007 will be rescheduled to fiscal year 2008 or later years with minimal long-term impact to Stockpile Stewardship.

Question. Why is it no longer in the best interest of the NNSA to support a balanced program that will complement scientific research at all three institutions?

Answer. The National Nuclear Security Administration (NNSA) believes it is important to support a balanced program in high energy density physics consistent with program priorities and the budget. As stated in the 2001 High Energy Density Physics Study Report, the National Ignition Facility (NIF), OMEGA, and Z provide complementary capabilities and are essential to the success of the Inertial Confinement Fusion Program and stockpile stewardship.

NNSA has chosen to reduce experimental availability at Z/ZR in fiscal year 2007 in order to maintain the schedule of the National Ignition Campaign as defined in the plan submitted to Congress in June 2005. This reflects the importance of NIF and the ignition program. As the Z machine will be down for refurbishment in fiscal year 2007, the reduction to Z operations will impact the facility for only the latter portion of the year. NNSA intends to operate Z at the level required to support Stockpile Stewardship Program goals in fiscal year 2008. Experiments not conducted at Z/ZR in fiscal year 2007 will be rescheduled to fiscal year 2008 or later years with minimal long-term impact to Stockpile Stewardship.

The fiscal year 2007 budget request supports a solid program of experiments at OMEGA in support of the National Ignition Campaign. Non-ignition weapon physics experiments have been realigned due to budget constraints. Experimental scope changes are being planned so stockpile program risks are minimized.

COMPLEX OF THE FUTURE

Question. On Monday, Tom D'Agostino briefed me on the Nuclear Complex of the Future. The Department has developed a plan to consolidate its operations in fewer locations, which should reduce security costs and reduce the overall number of facilities the NNSA must maintain by 2030.

In addition it supports the Reliable Replacement Warhead program and begins to catch up on the dismantlement of weapons no longer in the stockpile.

What I believe is missing from this complex of the future is the decrease in the overall number of weapons. If we don't decrease the number of weapons, the complex will still need to support the same eight systems plus the RRW.

It seems to me that you have traded off facilities, science and people but kept the same number of weapons and workload unchanged.

Why doesn't this plan contain a proposal to support fewer weapons systems? What actions does the DOD need to see before it will release one of the aging weapons systems?

Answer. Our Complex 2030 planning scenario is based on a smaller stockpile to meet the President's vision for the lowest number of warheads consistent with the Nation's security. However, pending a change in requirements from the Department of Defense (DOD), the National Nuclear Security Administration (NNSA) must support the current Nuclear Weapon Stockpile Memorandum signed by the President and the Joint DOD–NNSA Requirements Planning Documents as approved by the Nuclear Weapons Council.

Ongoing discussions with the DOD indicate that progress on Reliable Replacement Warhead concepts and on actions to achieve a responsive nuclear weapons complex infrastructure as described in the 2001 Nuclear Posture Review would be major factors in changing existing DOD plans. In addition, NNSA must demonstrate that we can follow through on existing commitments as we transform the stockpile and its supporting infrastructure.

Question. Has the DOE discussed with the DOD the benefits of reducing the diversity of weapon systems?

Answer. The National Nuclear Security Administration (NNSA) has shared with the Department of Defense (DOD) the costs and benefits associated with maintaining specific warheads. As expected, the costs of maintaining a number of warhead types significantly exceeds the unit costs of maintaining specific quantities of any particular type of warhead. The DOD appreciates the assurance gained by avoiding single-mode failures enabled by having diversity in the stockpile. Cost-benefit anal-

yses weighing the more quantitative costs of maintaining a number of warhead types compared to the harder-to-quantify benefits of warhead diversity are continuously made and figure heavily into discussions regarding the future stockpile.

Question. Why don't you eliminate or delay the W–80 Life Extension Program?

Answer. The Department of Defense (DOD) and the National Nuclear Security Administration (NNSA) are working in partnership to define the stockpile of the future. The 2030 stockpile that we envision would be smaller with a majority of warheads based on Reliable Replacement Warhead (RRW) concepts as well as a limited number legacy warheads that have been refurbished in life extension programs (LEPs). Thus we must support some number of legacy warheads, and their associated LEPs, even as we seek to evolve to a stockpile consisting primarily of RRW designs. In recent discussions, the DOD is working now to define plans for the future of nuclear cruise missiles. Pending a final decision from the DOD, the NNSA remains committed to supporting the plans contained in the current Nuclear Weapon Stockpile Memorandum signed by the President and the Joint DOD–NNSA Requirements Planning Documents as approved by the Nuclear Weapons Council.

DEFENSE NUCLEAR FACILITIES SAFETY BOARD

Question. The Defense Nuclear Facilities Safety Board has raised "safety basis" issues over the past several years that have significantly impacted the throughput at Pantex. Deputy Secretary Sell has commented on the need for NNSA to retain risk-related decision-making authority while assessing DNFSB recommendations.

What actions has the NNSA taken to assure safety in its operations at Pantex while addressing the significant backlog in surveillance and dismantlement?

Answer. For each nuclear weapon system, the National Nuclear Security Administration (NNSA) conducts an extensive hazard analysis and corresponding hazard mitigation process to assure safety of operations. This process is known as Seamless Safety for the 21st Century, SS–21. However, since the end of the Cold War, this process has become more and more risk averse. The zero-risk approach results in over-conservatism, which similarly impacts the ability to accomplish work at the Pantex Plant. Therefore, the NNSA is transitioning to a risk-informed decision approach that allows us to manage risk more effectively in ensuring safe and secure operations at Pantex and other facilities. The NNSA has several ongoing initiatives related to nuclear explosive operations that will incorporate this revised approach. These initiatives include the elimination of specific threats such as thermal and electro-static discharge via facility upgrades and modifications, the allowance of a more qualitative hazard analysis approach as opposed to the existing practice of over-conservative quantitative probability estimates, and the revision and clarification of existing rules and standards to reduce the possibility of misinterpretation and to confirm their added benefit to safety. These initiatives are ongoing and increased ability to perform work and reduction in backlogs should be realized starting in late fiscal year 2006.

Question. How do the budget priorities reflect these decisions and what are examples of specific steps to increase throughput?

Answer. The budget priorities reflect risk-related decision making in the fiscal year 2007 budgets and beyond. The dismantlement budget has been increasing since 2005 and the National Nuclear Security Administration (NNSA) is ensuring that all Stockpile Systems activities supporting the accomplishment of surveillance work at the Pantex Plant are funded. The corresponding Seamless Safety for the 21st Century (SS–21) hazard analysis activities have top funding priority so that weapon operations are upgraded to new safety criteria.

In early February 2006, the NNSA developed an extensive plan that contains several activities to increase throughput. The activities include steps to authorize specific multi-unit operations in Pantex facilities, additional facility configurations to prevent postulated accident scenarios, a review of existing Nuclear Explosive Safety practices and standards, additional hazard analysis process efficiencies, and a streamlining of the existing stockpile evaluation program.

Regarding Defense Nuclear Facilities Safety Board recommendations, the NNSA expects that in early fiscal year 2007, the only open recommendation related to nuclear explosive operations at the Pantex Plant, Recommendation 98–2, "Accelerating Safety Management Improvements at the Pantex Plant", will be closed.

Question. What actions has the NNSA taken to assure the "safety basis" process is fixed?

Answer. Over the past 19 months, the National Nuclear Security Administration (NNSA) has initiated several activities to install risk-informed decision-making throughout the nuclear weapons complex. These activities include an effort to identify and remove inefficiencies in our hazard analysis process, streamlining of the

process itself, and better documentation and communication with the national laboratories and the Pantex Plant. Specifically, in early fiscal year 2005, the NNSA revised the process steps and interfaces between the national laboratories and the Pantex Plant for addressing identified hazard scenarios for nuclear weapons operations. This process revision is currently being implemented for the W76 and W80 Seamless Safety for the 21st Century programs. The NNSA is also in the process of updating the standard approach for conducting hazard analyses.

Question. How will the increase in W76 dismantlement and subsequent Life Extension Program rebuild affect throughput?

Answer. For the W76, there is sufficient throughput planned at Pantex for both the dismantlement and Life Extension Program within the existing safety authorization basis. We are also examining increased throughput at Pantex by seeking improved means to mange risk in ensuring safe and secure operations at that facility.

GNEP

Question. Mr. Paul, can you please tell me what the NNSA's role is in the Global Nuclear Energy Partnership and what the NNSA budget provide for fiscal year 2007-fiscal year 2011?

Answer. NNSA plays a key role in GNEP—to reduce the threat of nuclear proliferation through the enhancement of international regimes that advance nonproliferation goals and the deployment of safeguard technologies and systems. These missions are currently addressed by ongoing programs within our Office of Defense Nuclear Nonproliferation (NA–20). As such, initial support to GNEP is part of the base funding for this Office and additional funds for fiscal year 2007 were not requested. NNSA expects that future budget requests will be necessary but must be tied to the level of engagement by the international community in advancing GNEP concepts and initiatives such as the reliable fuel services, developing and deploying advanced safeguards, and collaboration on small-scale reactor development.

GLOBAL NUCLEAR ENERGY PARTNERSHIP

Question. How does the NNSA nuclear weapons program contribute to our nonproliferation objectives?

Answer. Having a safe, secure and reliable nuclear weapons stockpile is one element of our national security posture that contributes to the defense policy goals of dissuasion and assurance. As stated in the 2006 Quadrennial Defense Review, maintaining a robust nuclear deterrent helps the United States to "shape the choices of countries at strategic crossroads." Potential adversaries are dissuaded from developing their own weapons of mass destruction programs because the United States nuclear forces are so powerful that trying to compete militarily is beyond the means of all but a few, already nuclear-weapons-capable countries. Our allies, such as Japan and the Republic of Korea, are assured of our willingness to come to their defense with our nuclear weapons if necessary, so they do not feel the need to develop their own nuclear weapons programs. Additionally, knowledge gained from research and development in our nuclear weapons program assists our intelligence community in developing key intelligence indicators of proliferant activity, enabling early intervention by all elements of national power—diplomatic, economic, and military—to be engaged in efficient and effective nonproliferation activities.

The nuclear weapons program also sets a high standard for material accountability, nuclear weapons safety and security, and identification and transfer of highly enriched uranium, that is excess to national security needs, for downblending. Finally, the weapon program organizations provide expert analysis and support to agencies that have a lead responsibility for special nuclear material detection, improvised nuclear device detection and defeat, and nuclear accident incident response.

NNSA MANAGEMENT OVERSIGHT

Question. Over the last 5 years, we have had several events within the Complex that have caused this committee great concern. They include: (1) Multi-billion dollar cost growth and delay of the NIF at LLNL; (2) Pantex production plant that has come to an effective standstill, without producing one refurbished device in almost a year; (3) The LANL shut down; (4) Mixed Oxide Facility—the estimated cost has risen from roughly $1 billion to an estimated $3.5 billion; (5) A major error in the construction of a multi $100 million uranium storage facility at Y–12 that halts construction and jeopardizes the secure storage of enriched uranium.

I am interested to know why you believe the NNSA has had such difficulty in delivering these projects on time and on budget. What actions is NNSA taking to prevent such occurrences in the future?

Answer. There have been problems with specific projects and our analysis has led to both project specific remedies and overall process improvements within the National Nuclear Security Administration (NNSA). Although the specifics of the cited examples vary widely, they share three attributes—each developed over a long period of time; each involved the actions and decisions of many levels of management; and each involved significant stakeholder issues.

My senior management and I intend to prevent such occurrences in on-going and future projects. Each of us, in dealing with subordinates and with each other, will avoid or substantially reduce the potential risk of problems of this type arising in the future by holding up all actions and decisions to five screening criteria:

—Does the change improve line accountability?
—Does the change cause people to be more or less risk adverse?
—Does the change reduce micromanagement?
—Does the change comply with Headquarters/site office Feds set what must be done and contractors determine how it is done?
—Is the change cost effective?

The first criterion—line accountability—is the unifying thread for all five. This is a continuous, real time accountability, not an "after-the-fact" surrogate accountability accompanied with punishment. It is imperative that all members of NNSA's dual lines of accountability—programmatic accountability for setting goals and operational accountability for conducting work—acknowledge openly all factors affecting their actions, the unfolding of the consequences of their actions over time; and the probable end result of those actions. That acknowledgement, shared up and down the chain of authority, will create a real-time accountability whereby each person will hold themselves and their subordinates accountable for the performance of their programs and their sites.

This is not a simple task. NNSA's dual lines of accountability operate within a gauntlet of external players who could impose decisions sharply focused on narrow segments of large interacting systems. There is an ever-present temptation for line management to adopt these narrow solutions solely to avoid risks inherent in doing otherwise. More subtly, well-intended line management can usurp the authority of subordinates through overly prescriptive goals and policies. This real-time accountability will hold each individual accountable for inappropriate avoidance of risks, for micromanagement, and for making proactive, real-time course corrections when we realize operations are heading other than toward the intended goal. These five questions seem simple on their face, however if used aggressively, daily, and purposefully from my level out to the factory floor they will shape the performance of NNSA and support cost-effective success across the complex.

SPECIAL NUCLEAR MATERIAL SECURITY

Question. Doesn't it make sense to consolidate the SNM to the minimum number of locations? Why don't you immediately take those actions to relocate the SNM to LANL, Pantex or Nevada?

Answer. We strongly agree with the principle of consolidating special nuclear material (SNM) to a fewer number of locations. We started consolidating Category I/II SNM to fewer sites, and to fewer locations within sites. We will improve the long-term security posture at our national laboratories by phasing out operations involving Cat I/II quantities of SNM. This includes eliminating the need for a Cat I/II SNM security posture at Sandia National Laboratories in New Mexico by 2008. Our plan is to remove all Cat I/II SNM from Lawrence Livermore National Laboratory by the end of 2014. By 2022, all research and development (R&D)/production activities involving Cat I/II SNM would cease in facilities operated by Los Alamos National Laboratory. As that is accomplished, these labs could transition to a common defense industry site security posture with reduced security costs. The consolidated plutonium center, once operational, would host all R&D, surveillance, and manufacturing operations involving Cat I/II quantities of plutonium. The Uranium Processing Facility at the Y–12 National Security Complex would consolidate existing highly enriched uranium contained in legacy weapons, dismantle legacy warhead secondaries, support associated R&D, and provide a long-term capacity for new secondary production. As a result, Y–12 would reduce its production and SNM storage footprint by about 90 percent, leading to significantly reduced costs for physical security at that site.

Question. What are your plans to control security costs without consolidating SNM to a minimum number of locations? What number is that, and why is that

the minimum number? Does not the consolidation of SNM also save substantially in the STA costs of the department as well? If not, why not?

Answer. We strongly agree with the principle of consolidating special nuclear material (SNM) to a fewer number of locations to control security costs. However, we do not propose to consolidate at a single location. Instead, we propose to consolidate to centers of excellence with Category I/II quantities of SNM for: (1) uranium; (2) plutonium; (3) weapon assembly/disassembly involving high explosives; and, (4) large-scale testing. We will improve the security posture and reduce costs at our national laboratories by phasing out operations involving Category I/II quantities of SNM. Thus, there will be four or fewer sites in the long-term with SNM requiring costly security.

In the long-term, consolidation of SNM will save secure transportation asset (STA) costs for the Department as well. However, moving material to de-inventory a site does increase the number of shipments and resulting costs in the near term.

"Z" 5-YEAR PLAN

Question. The NNSA's fiscal year 2007 congressional budget request for the Inertial Confinement Fusion Ignition and High Yield Campaign eliminates technical alternatives and near-term stockpile support within the National HEDP program by redistributing resources from fiscal year 2007 to fiscal year 2010 in order to focus on performing the first ignition experimental campaign on NIF in fiscal year 2010.

What is the administration's plan to restore balance within the national program and utilize the complementary strengths and capabilities of Z, Omega and NIF to ensure the short-term as well as the long-term health our nuclear deterrence?

Answer. The National Nuclear Security Administration (NNSA) budget request for fiscal year 2007 is highly constrained. NNSA has chosen to reduce experimental availability at Z/ZR in fiscal year 2007 in order to maintain the schedule of the National Ignition Campaign as defined in the plan submitted to Congress in June 2005. This reflects the importance of the National Ignition Facility (NIF) and the ignition program. As the Z machine will be down for refurbishment in fiscal year 2007, the reduction to Z operations will impact the facility for only the latter portion of the year. NNSA intends to operate Z at the level required to support Stockpile Stewardship Program goals in fiscal year 2008. Experiments not conducted at Z/ZR in fiscal year 2007 will be rescheduled to fiscal year 2008 or later years with minimal long-term impact to stockpile stewardship.

The fiscal year 2007 budget request supports the level of experiments at the OMEGA laser facility required to support the National Ignition Campaign. Support for non-ignition weapon physics experiments has been realigned due to budget constraints. Experimental scope changes are being planned so stockpile program risks are minimized.

BALANCED NATIONAL PROGRAM—NIF AT ALL COST

Question. Clearly the NNSA has decided against a balanced program for High Energy Density Physics program. NIF funding is up and every competing technology is down or removed from the program entirely.

Given the series of successes in high energy density physics with pulsed power technologies and the planned completion in fiscal year 2007 of NNSA's 5-year investment of ($165 million) in the Z refurbishment project, doesn't it make sense to increase, not decrease the funding for this facility in order to optimally utilize its anticipated world record X-ray energy output and other enhanced capabilities?

Answer. The fiscal year 2007 National Nuclear Security Administration (NNSA) budget is highly constrained. NNSA has chosen to reduce experimental availability at Z/ZR in fiscal year 2007 in order to maintain the schedule of the National Ignition Campaign as defined in the plan submitted to Congress in June 2005. This reflects the importance of the National Ignition Facility (NIF) and the ignition program. As the Z machine will be down for refurbishment in fiscal year 2007, the reduction to Z operations will impact the facility for only the latter portion of the year.

As stated in the 2001 High Energy Density Physics Study Report, NIF, OMEGA, and Z are essential to the success of Stockpile Stewardship. NNSA agrees that the sensible path is to use the refurbished Z and its enhanced capabilities in support of Stockpile Stewardship. Accordingly, NNSA intends to operate Z at the level required to support Stockpile Stewardship program goals in fiscal year 2008. Experiments not conducted at Z/ZR in fiscal year 2007 will be rescheduled to fiscal year 2008 or later years with minimal long-term impact to Stockpile Stewardship.

NNSA has carefully reexamined the needs of the Stockpile Stewardship Program and concluded that near-term program needs for fiscal year 2008 and beyond can be met with approximately a single shift of operations at Z/ZR. This is the historical

level at which NNSA has funded the operations of Z. While an additional shift of operation would allow greater exploitation of the significant scientific opportunities at Z/ZR, tough choices have been made within the current constrained budget environment.

Question. From a risk management perspective, is it a sound strategy to put our resources disproportionately on the NIF technology and the associated approach to ignition, eliminating balance in the National ICF Program?

Answer. Since the inception of the Inertial Confinement Fusion (ICF) program, the National Nuclear Security Administration (NNSA) has supported numerous technologies and alternative approaches to demonstrating inertial fusion ignition. Review committee reports from the National Academy of Sciences and other groups have urged the NNSA to focus on the demonstration of ignition using high power solid state lasers (the National Ignition Facility (NIF) and OMEGA), as this was the lowest risk and most expeditious path to success. NNSA agrees with this conclusion and has focused on the solid-state laser path to ignition since the mid 1990's.

It is a sound strategy to maintain an appropriate level of technical diversity and risk mitigation within the program. The NIF ignition program itself includes two major approaches to ignition, namely indirect drive and direct drive. Within each of these programs a wide variety of target and laser configurations is available for ignition attempts; this provides further risk mitigation.

Pulsed power offers an important alternate approach for the longer term, but no current analyses indicate that it could produce ignition conditions similar to NIF with the scale of the ZR machine. A goal of the NNSA ICF Campaign is to use Z/ZR to define the physics requirements for pulsed power ignition by 2015. Assuming pulsed power fusion turns out to be feasible, a robust ignition capability based on Z-pinch technology would thus require a new machine and would not be available for many years. The funding issues associated with Z operations in fiscal year 2007 are primarily a 1-year problem and should not disrupt NNSA's overall fusion strategy.

In summary, NNSA's strategy is to demonstrate ignition in the near term with high power lasers and assess the feasibility of Z-pinches as a possible future fusion capability.

Question. If the Z-pinch high-yield approach is the approach to risk mitigation—in the event that NIF fails—are we adequately funding the Z-pinch approach, and, more broadly are we performing the necessary assessment of the required next generation pulsed-power technology?

Answer. The Z-pinch program is not the only approach to risk mitigation within the Inertial Confinement Fusion Program. The National Ignition Facility ignition campaign includes two major alternatives, indirect and direct drive. In addition, within each of these alternatives there is a wide range of target and laser configurations available. As discussed by JASON and other review committees in the past, this provides substantial risk mitigation.

The assessment of pulsed power fusion is also an important component of the National Nuclear Security Administration's (NNSA) long-term plans for fusion. There is a specific NNSA program goal to define the physics requirements for pulsed power ignition by 2015. The reduction of shots available at Z/ZR in the latter portion of fiscal year 2007 is a short-term issue that will not unduly impact this overall strategy.

Question. What strengths does each facility (OMEGA, Z and NIF) bring to the national high energy density physics program?

Answer. As stated in the 2001 High Energy Density Physics Study Report, lasers and the Z pulsed power machine are complementary; each provides unique capabilities for the Stockpile Stewardship Program. Lasers (because of their high energy density) provide access to extreme conditions of temperature and pressure unattainable at Z/ZR. Z, on the other hand, provides a cost effective access to large-scale experiments because of its high total X-ray energy output.

The OMEGA laser supports both indirect (X-ray) and direct drive experiments. OMEGA also possesses a very large suite of diagnostics. OMEGA's high shot rate and precision diagnostics provide an important capability for experiments where large amounts of data are required. OMEGA is an essential component of the National Ignition Campaign and will also serve as the major near term laser experimental capability for non-ignition weapon physics experiments. The OMEGA Extended Performance laser will provide a valuable capability for diagnostic and other measurements at OMEGA.

The National Ignition Facility (NIF), with its much larger total energy and power, will be able to reach the extreme temperatures and densities required in many weapons experiments. NIF can produce energy densities approximately 20 times

greater than those achievable at OMEGA or Z/ZR. It is also the only venue for producing thermonuclear ignition—a key Stockpile Stewardship Program requirement.

Z/ZR is ideally suited for experiments where large X-ray energies, lower energy densities, and longer experimental durations are required. Z is also well suited to conduct certain materials property experiments; a particularly important example is material properties experiments with special nuclear materials, which are planned for the near future. The Z-Beamlet laser provides a powerful capability for diagnosis of Z/ZR experiments.

Question. Why is funding for direct drive ICF included in the national program to perform the first X-ray driven ignition campaign in fiscal year 2010?

Answer. Given the current status of Inertial Confinement Fusion technology, direct drive is the most important risk mitigation or backup to the indirect drive experiments in 2010. A specific effort is underway for developing direct drive and some preliminary experiments will be possible in the 2011–2012 timeframe. The National Ignition Campaign plan includes a decision point for these experiments in fiscal year 2009.

The University of Rochester is a major partner in the National Ignition Campaign and is responsible for a major piece of the National Ignition Facility (NIF) indirect drive ignition program. The University of Rochester also continues to make excellent progress in inertial fusion research. As an example, University of Rochester scientists recently executed the first ever OMEGA cryogenic direct drive implosion experiment in which unwanted surface roughness in the solid deuterium-tritium region was removed via use of the heat-generated from the beta decay of tritium. This so-called "beta layering" technique will also be used at NIF. The experience gained from cryogenic experiments at the University of Rochester will be important to timely implementation of cryogenics at NIF.

Question. What fraction of the budget is being identified to address new technologies and scientific breakthroughs?

Answer. Excluding construction, the National Nuclear Security Administration estimates that approximately $20 million per year (averaged over the current 5-year Future Years Nuclear Security Program period) within the Inertial Confinement Fusion and High Yield Campaign fiscal year 2007 budget submission is devoted to new technologies in addition to the mainstream National Ignition Facility indirect and direct drive ignition programs. This includes $11 million per year devoted to pulsed power fusion. The remainder of the $20 million is devoted to short pulse laser-matter research (including petawatt laser work) at the national laboratories and the University of Rochester Laboratory for Laser Energetics as well as university activities. Pulsed power fusion activities are aimed at evaluating the physics feasibility and technical requirements of this concept by 2015.

The achievement of ignition is itself a major scientific breakthrough. Many significant breakthroughs in laser technology, plasma physics, and other fields will make this achievement possible.

SECRETARY OF ENERGY ADVISORY BOARD RELATED QUESTIONS

Question. The DOE received the draft of the SEAB nuclear weapons complex infrastructure task force (NWCITF) report in mid-July 2005 and the official SEAB report on October 4, 2005.

What is the DOE's specific position on the 5 recommendations made in the report?

Answer. Our positions on the 5 recommendations made in the report are set out in the following table.

SEAB Task Force Recommendations	National Nuclear Security Administration Complex 2030 Recommendations
Design Reliable Replacement Warhead (RRW) immediately ...	Same.
Accelerate dismantlements	Same.
Establish Office of Transformation	Same.
Establish Consolidated Nuclear Production Center (CNPC) by 2015.	Establish distributed production centers of excellence with a consolidated plutonium center at an existing Cat I/II SNM site by early 2020's.
Consolidate all Category I/II special nuclear material (Cat I/II SNM) to CNPC long-term.	Consolidate Cat I/II SNM to fewer sites and fewer locations with sites; remove Cat I/II SNM from laboratories.

Question. If the SNM manufacturing and weapons storage were underground in tunnels mines, would that not significantly reduce the physical security costs for the complex?

Answer. Special nuclear materials (SNM) can be adequately protected in either above-ground or underground facilities. SNM manufacturing and weapons storage

underground in tunnels or mines does offer opportunities to reduce the physical security costs for the complex. However, the cost of construction, operations, and maintenance for underground facilities can be greater than structures on the surface. In the end, we must balance total costs, operational efficiencies, and long-term mission compatibility. We intend to begin a National Environmental Policy Act (NEPA) process to evaluate the impact of reasonable alternatives. In parallel with this NEPA process, we plan to complete independent business case assessments of the alternatives.

NATIONAL IGNITION FACILITY PLANS

Question. In November 2005, DOE issued a Record of Decision in the Site-wide Environmental Impact Statement on Livermore Lab Operations that gave the "green light" to construction of a large neutron spectrometer for NIF. The neutron spectrometer does not appear to be reflected in the budget.

What will its ultimate construction costs be? What is its construction schedule and what is its purpose?

Answer. The Department of Energy (DOE) "Site-wide Environmental Impact Statement for Continued Operations of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement" evaluated the environmental impacts of the proposed construction of a large neutron spectrometer for the National Ignition Facility. The Environmental Impact Statement and its Record of Decision do not represent a DOE programmatic decision to proceed with this spectrometer. Alternate approaches have been identified for neutron spectroscopy that do not require the construction of the large neutron spectrometer.

Question. In the same November 2005 Record of Decision, DOE determined it would conduct experiments with plutonium, highly enriched uranium, thorium 232, lithium hydride and other fissionable materials and in NIF. I see no mention of this change in the budget request.

When will the experiments with plutonium begin and when will the experiments with the other new materials begin?

Answer. The Department of Energy "Site-wide Environmental Impact Statement for Continued Operations of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement" evaluated the environmental impacts of the proposed use of plutonium, other fissile materials, fissionable materials, and lithium hydride in experiments at the National Ignition Facility. The Record of Decision provides appropriate National Environmental Policy Act analysis should the National Nuclear Security Administration decide at a later date whether to perform experiments with some or all of these materials. There is a proposal under consideration to conduct experiments with milligram quantities of specially prepared plutonium. In addition, non-ignition experiments with lithium hydride have also been proposed. If there were a programmatic decision to conduct these experiments, they would begin around 2012. None of these experiments requires modification of the chamber and do not represent any additional cost beyond the planned experimental budget for 2012.

Question. The Final Site-wide Environmental Impact Statement on Livermore Lab Operations mentioned that the NIF design would need to be modified to accommodate the plutonium experiments, in particular.

When will these modifications begin and when will they be complete?

Answer. The Department of Energy (DOE) "Site-wide Environmental Impact Statement for Continued Operations of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement" evaluated the environmental impacts of the proposed use of plutonium, and other new materials (e.g., highly enriched uranium, thorium-232, lithium hydride and other fissionable materials). The Environmental Impact Statement and its Record of Decision do not represent a DOE programmatic decision to proceed with these experiments. There is a proposal to begin experiments with small quantities of specially prepared plutonium in fiscal year 2012. In addition, non-ignition experiments with lithium hydride have also been proposed. If there were a programmatic decision to conduct these experiments, they would begin around 2012. None of these experiments requires modification of the chamber and do not represent any additional cost beyond the planned experimental budget for 2012.

Question. What is the approximate cost of modifying NIF to conduct these experiments?

Answer. The Department of Energy (DOE) "Site-wide Environmental Impact Statement for Continued Operations of Lawrence Livermore National Laboratory

and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement" evaluated the environmental impacts of the proposed uses of plutonium, and other new materials (e.g., highly enriched uranium, thorium–232, lithium hydride and other fissionable materials). The Environmental Impact Statement and its Record of Decision do not represent a DOE programmatic decision to proceed with these experiments. There is a proposal to begin experiments with small quantities of specially prepared plutonium in fiscal year 2012. Planned contamination control measures for other National Ignition Facility materials (e.g., beryllium, depleted uranium, activated metal particulate, and tritium) will be adequate to manage the use of specially prepared plutonium. In addition, non-ignition experiments with lithium hydride have also been proposed. If there were a programmatic decision to conduct these experiments, they would begin around 2012. None of these experiments requires modification of the chamber and do not represent any additional cost beyond the planned experimental budget for 2012.

Question. What will conducting experiments with plutonium add to the NIF operating costs and what impacts will the other radioactive material have on NIF costs? Are these included in the budget? If so, where—what about in fiscal year 2008–2011?

Answer. For the proposed experiments with specially prepared plutonium, no special modifications to the National Ignition Facility (NIF) chamber would be needed. Planned contamination control measures for use of other NIF materials (e.g., beryllium, depleted uranium, activated metal particulate, and tritium) will be adequate to manage the use of specially prepared plutonium. There are no additional operating costs to conduct these experiments.

The Department of Energy "Site-wide Environmental Impact Statement for Continued Operations of Lawrence Livermore National Laboratory and Supplemental Stockpile Stewardship and Management Programmatic Environmental Impact Statement" evaluated the environmental impacts of the proposed use of plutonium, other fissile materials, fissionable materials, and lithium hydride in experiments at NIF. The Record of Decision provides appropriate National Environmental Policy Act analysis should the National Nuclear Security Administration decide at a later date whether to perform experiments with some or all of these materials. There is a proposal under consideration to conduct experiments with milligram quantities of specially prepared plutonium. In addition, non-ignition experiments with lithium hydride have also been proposed. If there were a programmatic decision to conduct these experiments, they would begin around 2012. None of these experiments requires modification of the chamber and do not represent any additional cost beyond the planned experimental budget for 2012.

DEFENSE NUCLEAR FACILITIES SAFETY BOARD ACTIVE CONFINEMENT VENTILATION

Question. I understand the DNFSB is pushing the Department to deploy active confinement ventilation systems for all Hazard Category 2 and 3 facilities.

I understand by applying this technology, at all DOE/NNSA facilities would be extremely expensive. Does the Department have a cost estimate for such retrofits?

Answer. The Department of Energy (DOE) has developed a set of Evaluation Guidelines (February 2006) to review the efficacy of existing ventilation systems for applicable facilities across the Complex (some of which are active and some passive) to assess their performance attributes subsequent to hypothetical accident conditions. DOE intends to apply these Evaluation Guidelines in the near future. From the evaluations attendant to the Defense Nuclear Facilities Safety Board recommendation, DOE would be able to determine what, if any, modifications to ventilation systems might be required and what their costs would be. These data are not currently available.

Question. Has this request by the DNFSB adversely impacted any current projects?

Answer. No modifications to any facility have yet been made pursuant to the Defense Nuclear Facilities Safety Board recommendation concerning active confinement and no facility has been significantly impacted by the recommendation.

Question. Is this active ventilation systems fool-proof?

Answer. No, active ventilation systems are not fool-proof. The utility of an active system depends upon its active components, such as fans, and the passive components, like filters, working properly in the applicable conditions.

RELIABLE REPLACEMENT WARHEAD—AGENT FOR CHANGE

Question. The NNSA fiscal year 2007 budget request continues to support the current Life Extension Programs while the Reliable Replacement Warhead (RRW) stud-

ies are completed. The RRW program has the potential to serve as a means to transform the stockpile.

Please explain the timeframe for integration of the RRW program into the Overall plan for Life Extension.

Answer. Two design teams that are being led by our nuclear weapons laboratories—one from Los Alamos National Laboratory and one from Lawrence Livermore National Laboratory, both supported by the production agencies and Sandia National Laboratories—are engaged in a Reliable Replacement Warhead (RRW) design competition that will be completed later this year (November 2006). Upon favorable completion of the current study, we will work with the Department of Defense (DOD) to establish an RRW strategy as the "enabler" for stockpile transformation. This will include establishing an RRW-based stockpile plan before the end of 2007. The plan would also define the number of legacy warheads of specific types that are processed through life-extension programs. If RRW concepts are feasible and benefits consistent with expectations, we will seek authorization to proceed to engineering development and production consistent with a Nuclear Weapon Stockpile Memorandum signed by the President and the Joint DOD-National Nuclear Security Administration Requirements Planning Documents as approved by the Nuclear Weapons Council.

NNSA VACANCIES

Question. I have continued to observe the number of "vacant" and "acting" positions within the NNSA and the apparent difficulty in attracting suitable candidates.

What is the plan to address this shortfall in staffing and leadership for these critical programs?

Answer. NNSA did have a number of "vacant" positions, but has closed that gap considerably. In fact, NNSA's critical positions are over 98 percent filled. Consequently, NNSA does not now have a serious staffing shortfall in leadership or most other critical positions. NNSA has an aggressive approach and comprehensive programs of recruitment and retention to ensure that we do not encounter critical staffing and leadership shortfalls in the future. NNSA has occasional difficulty in filling positions in highly select circumstances, such as at remote locations like Los Alamos, New Mexico, or when seeking highly selective technical skills such as facility safety representatives, contracting officers, and computer scientists. Overall, NNSA is not experiencing difficulty in attracting and retaining highly qualified candidates to fill critical skills and mission-essential positions.

With respect to a number of "acting" positions, NNSA is moving as quickly as possible to recruit the best possible talent to fill these key executive positions. For example, NNSA just selected the new Associate Deputy Administrator for Fissile Materials Disposition, and is now close to filling several other "acting" executive positions at Headquarters.

We have made major innovations and improvements in NNSA's human capital management programs the past 3 years. These innovations cover the Administrator's statutory excepted service technical hiring authority and a complementary pay-for-performance system; an NNSA-wide performance management and recognition system; a merit promotion plan; and various programs of monetary incentives relating to recruitment and retention, including a student loan repayment program. Last year, we developed and instituted a Future Leaders Program to hire and develop entry-level technical, project management, and business talent. The first class of 30 interns proved to be a success beyond our most optimistic expectations, and we have just completed recruitment of a second class of 30 talented interns. Just recently, we inaugurated an enterprise-wide workforce analysis and planning process to inventory our current skills profile and to better identify near- and long-term staffing trends and skill needs.

With respect to addressing our selective and occasional staffing difficulties, we have streamlined our hiring processes, making greater use of automation, devising better marketing strategies and recruiting tools, and encouraging greater managerial involvement in candidate evaluation and selection. We are making maximum use of government-wide recruitment incentives, and exploring the use of OPM's competitive examination innovations, such as category-ranking procedures. Meanwhile, NNSA's excepted service employment and pay-for-performance system has allowed us to successfully compete with the private sector for many top technical workers, though not in every instance to be sure, as implied by your next question. And as NNSA has made full use of the Administrator's existing excepted service hiring and pay authorities, we are now considering alternative ways to build on and augment our previous successes.

Question. How is the NNSA tapping into the skills at the national laboratories to address shortfalls?

Answer. NNSA avails itself of the outstanding technical talent in our national laboratories in three primary ways, through IPA assignments, M&O contractor details, and consultant appointments. The IPA and M&O detail mechanisms are used to retain the services of current laboratory employees, and these mechanisms are used frequently to retain the services of top laboratory talent. For example, about 60 laboratory employees are currently on M&O details to NNSA, the number of laboratory employees on detail to NNSA usually fluctuating between 60 and 85 employees from month to month. There are four laboratory employees currently on IPAs to NNSA. Additionally, NNSA occasionally retains the services of retired laboratory employees through consultant appointments.

Senior laboratory employees command salaries that generally exceed Federal pay levels, which tends to negate NNSA's ability to recruit laboratory employees to fill permanent Federal positions. On the other hand, use of the Administrator's excepted service hiring and pay authorities has recently bolstered NNSA's ability to attract top technical talent, not only from the laboratories, but also from industry and the universities.

Question. Are Alternative Personnel Systems that provide incentives for specialized skills through performance-based pay being considered for potential implementation?

Answer. There is no question that an agency's staffing and recruitment effectiveness can be improved through various appointment and pay features of an alternative personnel system. Toward that end, NNSA designed, developed, and implemented an alternative excepted service personnel system to implement the hiring and pay authorities granted to the Administrator by the NNSA Act. We have used the Administrator's entire statutory allocation of 300 scientific and engineering positions. In addition, we have made extensive use of large segments of the Department's two excepted service authorities and will continue to use the remaining Departmental excepted service authorities. We will also assess the need for potential additional authorities and develop detailed plans for consideration of the Congress in the appropriate out-year budget submissions.

Question. Can you comment on the success of this new governance model and any lessons that you've learned in implementation?

Answer. NNSA view is that this "model" contract has provided new tools that have been and will continue to be beneficial to both the Government and the contractor. We are performing oversight with fewer Federal employees and NNSA has seen improvement in Sandia's performance as a result of this new governance model.

In the last 2 years, Sandia has developed and implemented a Contractor Assurance System throughout the laboratory including a corporate self-assessment program, corrective action and tracking program, corporate issues tracking program, benchmarking processes, and performance metrics for key laboratory operations. When combined these processes and systems allow both Sandia and NNSA to have greater insight into operational and program performance enabling them to be able to identify and correct problems at lower levels before they become systemic.

We have also seen improvement in Sandia's capitalization on private sector experience. Sandia has now formalized a process to ensure that lessons learned are implemented. Sandia has sought and achieved certification against industry standards. An example is their ISO 9001 procurement system certification. Sandia is currently in the process of seeking ISO 9001 certification of their Contractor Assurance System, which they call the Integrated Laboratory Management System. Sandia also completed a benchmarking study of their G&A by Hackett.

The model contract has increased contractor accountability. The model contract features of Fixed Fee for the stockpile work, tied to the Award Term Incentive, and Incentive Fee are useful to the Government. We have learned that the award term (which Sandia did not earn for fiscal year 2005) is an extremely powerful tool to focus a contractor's attention. The model contract drives communication, efficiencies, and accountability better than the previous contract utilizing a fixed fee structure. We have noted increased involvement by the parent entity, Lockheed Martin and the Sandia Corporation's Board of Directors. The Board is very active with committees on CAS/ILMS or governance and Security and Safety which Sandia VPs report to routinely. The model is that once ILMS/CAS is up and running this form of governance will be relied on to change oversight.

Finally, through this contract, NNSA has been able to realize cost savings which have been applied to Laboratory operations. Examples of completed projects include:

—enhancing classified network ($2 million);

—cleaning up beryllium contamination ($2 million);

—Implementation of a new JTA development process with a projected reduction of cycle time of 50 percent (6 years to 3 years); and,
—W80 Neutron Tube Development Welding Cell value stream mapping that realized 96 percent reduction in cycle time.

We have learned some valuable lessons in our first 2 years. The first is that it has been hard to redefine the contractor and Government relationship. Both sides had grown accustomed to having the Government telling the contractor not only the "what" but the "how" with old habits being difficult to change. Secondly, redefining the way in which the Government operates has not been easy for either party. When NNSA was established we eliminated the Operations Offices and redefined the roles and responsibilities of the Site Office and Headquarters. This change has been difficult but we are gaining momentum and there is evidence that we are being more thoughtful in our interactions and direction of the contractors. This new structure has also allowed the Site Offices to focus on improving operations at our facilities to include security and safety. Over the last 3 years at Sandia this has resulted in significant improvement in security operations and smaller improvements have been achieved in the safety arena. The NNSA Leadership Coalition, consisting of senior mangers from Headquarters, the Service Center, and Site Offices are working together and are speaking with one voice. This has resulted in NNSA providing more clear and concise direction.

LANL—NEW CONTRACT COSTS

Question. Mr. D'Agostino, you were the selection officer for the Los Alamos contract award. You selected the Los Alamos National Security, LLC—a partnership between Bechtel, University of California, BWTX and Washington Group. These are all very well-qualified groups. However, this contract is much more expensive than the previous contract and I suspect you were attempting to attract the best talent with a much higher fee.

This contract also requires the Lab to pay Gross Receipts Tax to the State ($75 million). I suspect there are several other cost increases that add to the bottom-line operations of the lab. Unfortunately, the budget doesn't reflect an increase to accommodate these added costs. All of these costs will come out of R&D budgets and lab operations that we appropriate.

Do you know how much more it will cost to operate the new contract? What impact will this have on the programs?

Answer. Under the new contract, NNSA could pay Los Alamos National Security, LLC (LANS) significantly more fee than it pays the University of California to manage the laboratory if LANS lives up to the performance incentives and contractor assurance initiatives LANS proposed in its winning proposal. In the first year, the difference could be in the neighborhood of $66 million and varies somewhat over the base term of the contract because LANS proposed a lesser fee in the out-years than in the first few years.

LANS and the New Mexico Department of Revenue and Taxation have not finalized LANS payment schedule and procedures and, therefore, it is not possible to respond precisely with respect to the New Mexico Gross Receipts Tax. It will not be on the order of $75 million more than at present because the major for-profit subcontractors already pay gross receipts tax and your $75 million figure does not take that into account.

In addition, there will be additional set-up expenditures to establish and maintain the pension plans and benefits arrangement for LANS, a private entity; they are, therefore, different than the system expenses associated with the pension and benefits provided by the University of California.

NNSA expects minimal impact on program performance because of the factors enumerated in response to the next question.

Question. Where will the new contractor find the funding to offset the increased costs without negatively impacting the program?

Answer. Based on the LANS proposal, its multi-year strategy for continuous improvement and its plan for parent organization oversight and assistance, NNSA is confident that LANS will offset much of the new expense through savings realized through better, more disciplined and more streamlined operations. For example, through footprint reduction LANS is expected to reduce operation and maintenance costs. Through its integrated project teams, LANS is expected to reduce the cost of operating facilities. By improving procurement and financial management overall, LANS is expected to realize significant savings both in the actual business operation and in the program supported by that business operation.

NNSA anticipates "locking in" the promises of better and more cost-effective performance through the objectives and measures in the annual performance evaluation plan against which LANS must perform to earn a significant portion of its fee.

Question. Do you have sense as to which programs might be impacted? Will this impact jobs?

Answer. NNSA does not know at present on which (if any) programs there may be an impact as a result of the changeover to LANS. We remain hopeful that there will be little to no impact on the deliverables NNSA needs within its mission requirements.

There could be some impact on jobs, the extent of which is not certain at this time. This is because some current employees may choose to retire and not seek employment with LANS, may retire and will not be re-hired by LANS or may resign and seek employment elsewhere. NNSA does not expect this number to be significant given the "substantially equivalent" benefits and compensation offers NNSA directed to be placed in the transition.

NNSA also believes that, over time, LANS' transformation of the laboratory could change the nature of some jobs currently performed at the laboratory as it develops science and programs to address the National Security needs of the future. It is not certain whether, or in which direction, it may affect the number of jobs at the laboratory as NNSA insists on a forward-looking and dynamic Los Alamos National Lab.

Question. How much does the NNSA invest in developing technology that can be used as early warning detection, or as a security deterrent?

Answer. In addition to the technologies that are deployed at each site with operational funds, the National Nuclear Security Administration spends $8.0 million per year on a program dedicated to security technology deployment. These technologies cover the entire range of security requirements, from early warning and detection to armor-piercing ammunition, and from new communications systems to Classified Removable Electronic Media accounting systems.

Question. How effective has the NNSA been in the deployment of this technology and what can be done from a technology standpoint to reverse the growing trend line in security costs?

Answer. The National Nuclear Security Administration is effective at deploying innovative security technologies. The trend line in security costs will be held down as much as possible with these technologies. But the return on investment is generally not immediately evident—it takes several years for a new technology to start reducing operational costs. In addition, the Design Basis Threat policy may continue to drive the overall trend line upwards, in spite of the savings from technology deployments.

Question. Why have these processes taken so long? Do you lack confidence in the incumbent—who has been the subject of numerous critical reports by the IG?

Answer. Proposals are currently being reviewed by the Source Evaluation Board to select a suitable candidate for the security contracts at Y–12 and the Nevada Test Site. Currently, the Y–12 proposal is being reviewed by the Source Evaluation Board. The Nevada Test Site proposal has been sent back to the Source Evaluation Board for further analysis. The Federal Acquisition Regulation parts 3.104–3 "Statutory and related prohibitions, restrictions, and requirements," and 3.104–4 "Disclosure, protection, and marking of contractor bid or proposal information and source selection information," does not allow the Department to provide any specific information in relation to the selection of these contracts.

Question. Is there insufficient competition? Are you uncertain of the security mission at these sites?

Answer. Proposals are currently being reviewed by the Source Evaluation Board to select a suitable candidate for the security contracts at Y–12 and the Nevada Test Site. The Federal Acquisition Regulation parts 3.104–3 "Statutory and related prohibitions, restrictions, and requirements," and 3.104–4 "Disclosure, protection, and marking of contractor bid or proposal information and source selection information," does not allow the Department to provide any specific information in relation to the selection of these contracts.

Question. Will you update me on measures taken to improve security performance at the site?

Answer. The security posture at the Nevada Test Site has undergone a complete transformation. We have brought on board a highly qualified Federal security manager and nuclear security professionals to oversee the build-up of physical security measures at the site. The physical security and protective force upgrades being deployed are extensive and strong. Over the past year we have increased the size, training, and equipment of the protective force. These improvements include the procurement of additional armored vehicles and improved firepower in the form of

heavy machine guns, grenade launchers, and armor piercing ammunition. To enhance our adversary detection capabilities we are installing state-of-the-art electronic surveillance and video assessment systems. A major element of our upgrade plan involves the fielding of a Special Response Team (SRT) capability whose training and equipment rival those of a major city SWAT team. The combined effect of these upgrades is significant, making the site one of the most heavily defended locations in the Nation. We will continue to closely monitor these upgrades and the performance of the protective forces at the Nevada Test Site.

Question. Why should the public have confidence that change has occurred, given Admiral Mies' finding that DOE/NNSA's ability to "to evaluate findings, assess underlying root causes, analyze alternative courses of action, formulate appropriate corrective action, gain approval, and effectively implement change" is "weak to nonexistent"?

Answer. In the year-and-a-half since the Deputy Secretary referred to "recent significant physical security performance problems at Nevada Test Site . . ." significant progress has been made. To confirm this progress, the Administrator for the National Nuclear Security Administration requested the Department of Energy, Office of Independent Oversight, conduct a follow-up to its 2004 inspection. That follow-up was completed in September 2005, and the Office of Independent Oversight reported that "performance has noticeably improved." Specifically, "significant improvements over the past year include positive management initiatives, appropriate skills and training, robust protection at the Device Assembly Facility, and effective protection of classified matter."

Question. How much is the complex proposing to spend on physical security in 2007?

Answer. The fiscal year 2007 Defense Nuclear Security budget is $665.7 million. Of this amount, $491.6 million is for "physical security" programs.

Question. Is this security cost driven by the number of sites in the complex, or the number of facilities within each site, or the amount of SNM at each site?

Answer. All three factors contribute to the level of security costs. At sites such as Pantex and Y–12 the size of the special nuclear material holdings and the geographic spread of the storage and processing facilities drives up the cost of security, as protective forces are needed to control large areas of the site. At the remaining National Nuclear Security Administration sites, we have been able to effect on-site consolidation that has significantly reduced the cost of protecting special nuclear material, the best example of this is the removal of Category I/II special nuclear material from Los Alamos National Lab's TA–18.

Question. What are the annual security costs at Kansas City, LLNL, LANL, at Sandia Livermore and Sandia Albuquerque, at Savannah River, and at Y–12?

Answer. Fiscal year 2007 Defense Nuclear Security allocations by site are:

[In millions of dollars]

	Amount
Kansas City	11.3
Lawrence Livermore	83.9
Los Alamos	113.7
Sandia	70.9
Savannah River	11.5
Y–12	132.1

Question. Would the security costs at any given site go down if they did not have SNM at that site?

Answer. While each site is unique, the security costs for protecting special nuclear material ranges between 50 percent to 70 percent of the site security budget. The National Nuclear Security Administration is aggressively pursuing further consolidation of special nuclear material, both as a means for reducing security costs, but also to reduce the overall risks posed by this material.

RUSSIAN HIGHLY ENRICHED URANIUM DEAL

Question. If the Russian Suspension Agreement is modified or allowed to expire resulting in significantly increased amounts of Russian low enriched uranium entering the U.S. market:

—1. It is expected to have a serious impact on the financing for the $1.4 billion privately funded LES National Enrichment Facility by creating a significant negative market impact from the flooding of the United States with low enriched uranium;

—2. The financial community will likely raise serious concerns regarding the long-term viability of the LES project if they feel the market would be impacted by the expiration of the Russian Suspension Agreement;
—3. A similar negative impact is expected on USEC's ability to build and operate the American Centrifuge Facility; and
—4. It could prevent the nuclear industry from having a domestic source of enriched uranium if the LES and USEC facilities are not built because of this negative market impact.

Please provide the committee with the position of the NNSA on the impact the modification or expiration of the Russian Suspension Agreement resulting in the significant increase of Russian low enriched uranium entering the U.S. market will likely have on the ability to build and operate the new LES and USEC facilities and the impact on the future U.S. domestic enrichment industry of large amounts of Russian low enriched uranium entering the U.S. market.

Answer. DOE/NNSA supports the deployment of advanced centrifuge uranium enrichment facilities in the United States—as was emphasized in a DOE letter of July 25, 2002, to the Nuclear Regulatory Commission—and believes that such facilities are needed for both energy security and national security purposes. The letter further stated that, "The Department firmly believes that there is sufficient domestic demand to support multiple domestic enrichers and that competition is important to maintain a healthy industry." I am aware of no circumstance that has changed or diminished that statement and I believe it is as appropriate today as it was in 2002.

Let me assure you that I share your concern on the fragility of the current U.S. uranium enrichment infrastructure, and the need to modernize and expand U.S. uranium enrichment capabilities. I recognize that the decisions by USEC to build the American Centrifuge Facility and by LES to build the National Enrichment Facility were based on market projections that included continuation of the Russian Suspension Agreement. It is clear that terminating or drastically modifying the Suspension Agreement at this critical time could undermine these ongoing plans to establish a modern, efficient and competitive uranium enrichment industry in the United States.

Although NNSA is not a party of record in the Department of Commerce's Sunset Review of the Suspension Agreement, NNSA has made clear its support for continuing the Suspension Agreement in the Interagency. NNSA fully supports Commerce's Preliminary Results of the Sunset Review of the Suspension Agreement reported in the Federal Register on Monday, April 3, 2006, which find that revocation of the Suspension Agreement would likely lead to a recurrence of dumping.

I would like to express my concern for the 1993 Highly Enriched Uranium Purchase Agreement (the HEU Agreement), which is eliminating 500 metric tons of excess Russian HEU from dismantled Russian nuclear weapons by downblending it for use as fuel for U.S. power reactors. The Suspension Agreement has been the legal basis by which Russian low enriched uranium has entered the U.S. market duty free. Unilateral Russian termination of the Suspension Agreement would automatically trigger 115 percent antidumping duties on the HEU Agreement imports from Russia, immediately threatening the economic viability of the HEU Agreement, which supplies half of the nuclear fuel for U.S. power reactors. An interagency review is underway to address this concern; any proposed modification of the Suspension Agreement would require careful review.

STATUS OF MOX

Question. I am surprised by the lack of detail in your statement regarding MOX. Your statement makes no mention of the fact that the Department is rebaselining the entire program and cost estimates have increased to over $3 billion. It makes no mention of the steps the Department is taking to respond to the DOE IG Report, which found the Department lacks sufficient contractor oversight, which has contributed to the increased costs.

It also fails to mention that the Russians have made it clear that they will no longer pay for the operations of the MOX facility if they are limited to using the fuel in light water reactors, in the same manner as United States. Apparently the Russians have made unilateral decision that their only interest is in fast reactors.

Finally, I am becoming increasingly frustrated that the Russians continue to stall the final approval of the liability agreement. I believe the Russians are now the biggest liability facing the program and we should sever the link between the construction projects.

Since your statement fails to mention any of these issues can you please update the committee? What are you doing to improve the contract oversight and reign in the contractor?

Answer. I share your frustration over the fact that the Russian Government has not yet signed the protocol covering liability protection for the plutonium disposition program. Despite continued delays, we have been assured repeatedly by officials from the Russian Ministry of Foreign Affairs and the Russian Atomic Energy Agency that there are no substantive problems with the language that was agreed to in July 2005, but rather it is a question of the protocol undergoing a complete Russian interagency review that has been moving more slowly than expected. We continue to believe that the protocol will be signed shortly.

The Russian Government has repeatedly stated that it remains committed to the 2000 U.S.-Russian Plutonium Management and Disposition Agreement, which obligates both countries to dispose of their plutonium by using it as mixed oxide (MOX) fuel in nuclear reactors. The agreement states that any nuclear reactor agreed to by both parties may be used for disposition. While Russian Government officials recently reaffirmed its willingness to proceed with plutonium disposition in light water reactors if the international community would provide full funding for the program, they also expressed their desire to explore the use of advanced reactors. In this regard, they agreed to begin early disposition of limited quantities of plutonium in Russia's existing fast reactor well before the United States could begin disposition of its plutonium, demonstrating their commitment to dispose of their surplus plutonium.

As a result, we are moving forward with construction of the U.S. MOX facility at the Savannah River Site this year. To prepare for this effort, we have already taken a number of steps to improve the management of the MOX facility project. These include incorporating performance incentives in future contract negotiations, improving monthly project reports, controlling contractor spending, and reviewing contractor performance. Now that the planned date for the start of construction of the MOX facility has been set, the project cost and schedule baseline is currently undergoing an independent review and validation prior to the start of construction. This will enable us to track project performance against the baseline and minimize the possibility of future cost overruns. Plans are also underway to hire a qualified MOX Federal Project Director and to streamline the organizational structure of the project.

RADIOACTIVE SOURCES

Question. What is NNSA doing to ensure that both domestic and foreign radioactive materials are not used in a malicious manner against the United States?

Answer. NNSA's Office of Global Radiological Threat Reduction works in both the United States and overseas to secure, consolidate and/or remove high powered (i.e., suitable for use in an effective radiological dispersal device (RDD)) and vulnerable radioactive materials.

The U.S. Radiological Threat Reduction (USRTR) program, also known as the Off-Site Source Recovery Program, has recovered over 12,000 excess and unwanted sources in the United States, containing over 160,000 curies of radioactivity. In addition, the USRTR program is beginning a Source Security Program, which provides security assessments of facilities, as well as training for users of high-risk sources.

The International Radiological Threat Reduction (IRTR) program works in over 40 countries with international and regional organizations to secure radioactive materials, transfer detection equipment, train regulators and police, and support international conferences and training for foreign government officials on best practices for security of radiological sources.

Question. Your agency, DHS, NRC and other agencies are involved to some extent in the security of high-risk radioactive materials that could be used for RDDs. Should there be one lead agency which takes overall coordinating responsibility for ensuring that radioactive materials are not used maliciously?

Answer. On December 13, 2003, the President issued Homeland Security Presidential Directive 7. Item 29 of this directive states that the Secretary of Homeland Security will continue to work with the Nuclear Regulatory Commission and, as appropriate, the Department of Energy, to ensure the necessary protection of nuclear (including radiological) materials in medical, industrial, and academic settings and facilities that fabricate nuclear fuel and the transportation, storage, and disposal of nuclear materials and waste.

Question. What has been NNSA's budget allocation for both domestic and international programs for the past 3 years to address the RDD issues? Do you feel that NNSA has adequate, dedicated resources to address these issues?

Answer.

Global Radiological Threat Reduction Program	Fiscal Year 2004	Fiscal Year 2005	Fiscal Year 2006
International RTR	$27,000	$24,800	$24,078
U.S. RTR	5,400	7,540	12,750

Funding over the past 3 years has permitted the Office of Global Radiological Threat Reduction to accelerate recoveries of orphaned sources in the United States and expand our international program beyond Russia and the Former Soviet Republics.

Question. What measures has NNSA taken to mitigate the consequences of an RDD attack and to respond to such an attack if one should occur?

Answer. The core focus areas of the Office of Global Radiological Threat Reduction are: (1) improving radioactive material security at the "first line of defense", i.e., the facilities where sources currently reside, beyond our borders; and (2) recovering disused sources in the United States, so as to mitigate RDD use in an attack. Additionally, the program works in concert with NRC and DHS domestically to address security of in-use sources.

Question. What is the relative priority you would assign to taking measures to ensure that an RDD attack does not occur against the United States?

Answer. Reducing the threat of a radiological dispersal device attack is a high priority for NNSA, DOE, and the Bush administration. This administration has done more than any other to secure radiological materials against their possible use by terrorists in a radiological dispersal device (RDD or "dirty bomb"). The 2003 International Conference on Security of Radioactive Sources highlighted the need for radioactive source security and DOE/NNSA's Office of Global Radiological Threat Reduction is a response to that need. However, the threat posed by weapons-useable nuclear materials in an improvised nuclear device is considered a higher priority than the RDD threat because of the dramatically greater consequences associated with a nuclear explosion. This does not negate the severity of the RDD threat, which remains a high priority for DOE/NNSA.

Question. Given the severe social, economic and psychological consequences of an RDD and the greater likelihood for an RDD attack to occur over an attack with a nuclear explosive, what can be done to accelerate NNSA's efforts to protect against an RDD attack?

Answer. The Office of Global Radiological Threat Reduction has qualified and dedicated Federal and national laboratory resources working both overseas and in the United States to address the RDD threat. We have established and are exercising our interagency and international liaisons to share best practices and the "security perspective" domestically and internationally. Current and out-year funding will support commitments made in over 40 established project countries and the United States.

Question. In light of the mass evacuation, property damage and severe economic burden resulting from Hurricanes Rita and Katrina, how would you compare such natural disasters to an RDD attack?

Answer. Comparing the effects of a natural disaster and those of an RDD attack is difficult. Just as it is difficult to predict the damage resulting from a natural disaster, it is equally difficult to predict the relative strength and dispersal patterns of an RDD attack. Some types of damage are likely to be similar: displaced populations, economic losses, environmental damage, social panic and possible societal breakdown. Damage from an RDD attack, however, could adversely impact one additional element—denial of property. Denial of property would last until an area could be decontaminated, potentially a technically and financially demanding task. Additionally, the health effects of an RDD attack could include substantial increases in long-term cancer rates. Finally, the psychological impact and widespread fear resulting from a radiation attack can is difficult to estimate.

Question. How do other countries perceive the consequences of an RDD? Should we be building more effective partnerships with these countries such that they take an active role to ensure that an RDD attack does not occur?

Answer. The threat posed by the use of a radiological dispersal devise (RDD) has only recently come to the attention of the international community. The international community, led by the United States, our G–8 partners, and international organizations such as the IAEA, has convened three international conferences to address the safety and security of radioactive materials around the world. Fostering and maintaining partnerships with other countries is essential due to the widespread use of radiological materials in applications ranging from agriculture to oil exploration. The International Radiological Threat Reduction (IRTR) program has

developed Regional Radiological Security Partnerships in Southeast Asia (in sponsorship with Australia) and South America and is fostering burgeoning relationships in Africa to address the security of radioactive materials in those regions.

Question. What can be done to get other countries to allocate their resources to address the RDD problem?

Answer. Recent international conferences have highlighted the issue of the security of radioactive materials and are key to convincing other countries to allocate resources to address the RDD threat. Additionally, the International Radiological Threat Reduction (IRTR) program has developed Regional Radiological Security Partnerships to address the security of radioactive materials worldwide. A notable success has been our Regional Radiological Security Partnerships that was developed in Southeast Asia in sponsorship with Australia. This partnership supports NNSA and IAEA objectives to improve the security of high-risk radioactive materials. Australia has committed monetary resources for this cooperative threat reduction effort. Furthermore, as an integral part of our bilateral cooperative projects, the IRTR program addresses sustainability of the security systems it provides and works with countries to ensure that security costs are integrated into operating budgets.

Question. What is NNSA doing to enlist support from other international organizations, such as the IAEA and Europol, to address the RDD problem?

Answer. Although NNSA has no interactions with Europol, we have developed strong cooperative relationships with both the IAEA and the International Criminal Police Organization (Interpol) to address the RDD problem.

NNSA's International Radiological Threat Reduction (IRTR) program has been engaged in cooperative projects to prevent radiological terrorism with Interpol since 2003. This cooperation includes assisting Interpol to develop analytical reports that characterize the nature of thefts and diversions of radioactive materials, and equipping and training front line police officers to enable them to detect and mitigate radiological security threats. This training allows these officers to remain competent in the use of this equipment over an extended period of time.

The IRTR program cooperates extremely well with the IAEA ranging from multinational conferences to in-country support on topics ranging from regulatory support to physical protection. The Office of Global Radiological Threat Reduction continues to provide the IAEA's Nuclear Security Fund significant donor support through extra-budgetary contributions. To date, GRTR has contributed approximately $11 million for our joint activities.

Question. I am aware that NNSA has worked in over 40 countries to help ensure that their high-risk radioactive sources are secure. What is being done to ensure that these security measures will remain in use and effective for a period well beyond the length of the assistance that NNSA is providing?

Answer. It is critical to ensure the continued operation and maintenance of security systems and procedures after the work of the Office of Global Radiological Threat Reduction is complete. One major aspect of our project planning and execution overseas is developing a sustainable physical protection system and incorporating security into host country practices and foreign facility operational budgets. Designing an effective and sustainable security system requires working directly with national regulators and site personnel to make sure they understand and evaluate the full gamut of operational considerations that result from the installation of a physical security system.

LABORATORY DIRECTED RESEARCH AND DEVELOPMENT

Question. What does the budget propose in for the LDRD account?

Answer. Although LDRD levels are not proposed specifically in the annual budget requests, the NNSA supports continuing funding for the LDRD programs at its National Laboratories.

In accordance with guidance in the Conference Report to accompany the Energy and Water Development Appropriations Act, 2006, (H. Rept. No. 109–275 (2005)), and departmental policy, NNSA required its Laboratories to modify cost accounting procedures and apply overhead charges to the LDRD program. Implementing these changes while sustaining the historical funding levels for LDRD requires a funding rate of up to 8 percent. Our objective is to sustain the funding that is applied directly to scientific and technical work so the changes described above should not decrease the effective level of research conducted under the LDRD program or increase the cost of DOE programs or work for non-DOE customers.

The NNSA continues to believe the recommendations of the Packard Commission and Galvin Commission that a robust LDRD program is essential to the scientific

and technical vitality of the National Laboratories and their long-term contributions to national security.

LABORATORY DIRECTED RESEARCH AND DEVELOPMENT

Question. Does the budget contemplate any reforms to this program?

Answer. The NNSA and the National Laboratories have implemented the changes required to apply all Laboratory overhead charges to the LDRD program in fiscal year 2006. There is no specific initiative under way that would result in further changes to the LDRD program to be implemented in the near future. The NNSA and its National Laboratories regularly review the LDRD program, how it operates, and the science and technology it produces, to improve the program and its value to the Nation. If this process identifies beneficial reforms within the current constraints for the LDRD program, then the NNSA would work with the Laboratories to implement them.

CONCLUSION OF HEARINGS

Senator DOMENICI. We stand recessed until the Chair calls another meeting.

[Whereupon, at 3:08 p.m., Thursday, April 6, the hearings were concluded, and the subcommittee was recessed, to reconvene subject to the call of the Chair.]